ENGINEERING NEWS-RECORD

Frank Marston takes on 44,000 bosses p.45

A McGRAW-HILL PUBLICATION

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Modern Water Storage Tanks built by

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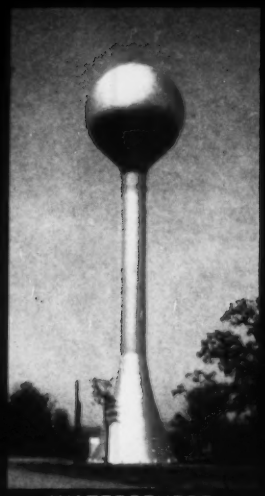
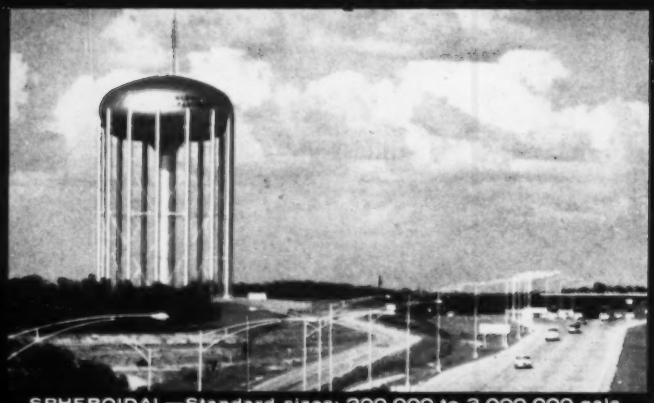
RADIAL-CONE
Standard sizes: 500,000 to 3,000,000 gals.



WATERSPHERE
Standard sizes: 25,000 to 250,000 gals.

ELLIPSOIDAL
Standard sizes: 15,000 to 500,000 gals.

ORNAMENTAL STANDPIPE
No limit to capacity



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Standard sizes: 250,000 to 500,000 gals.

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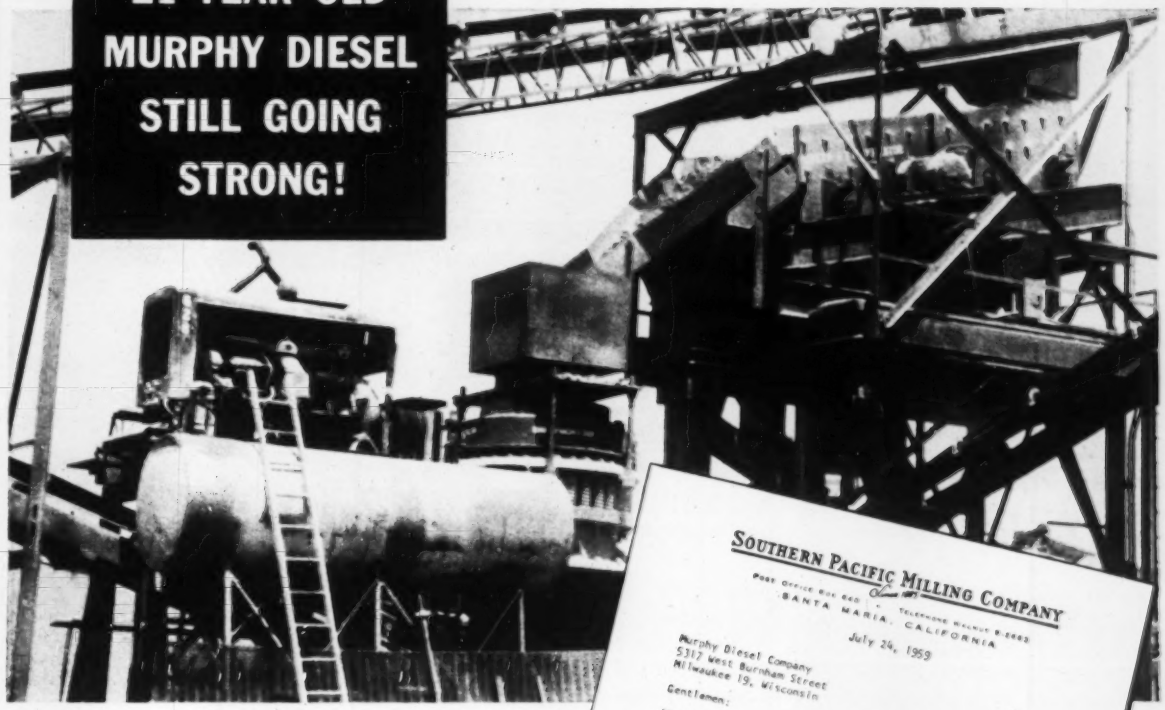
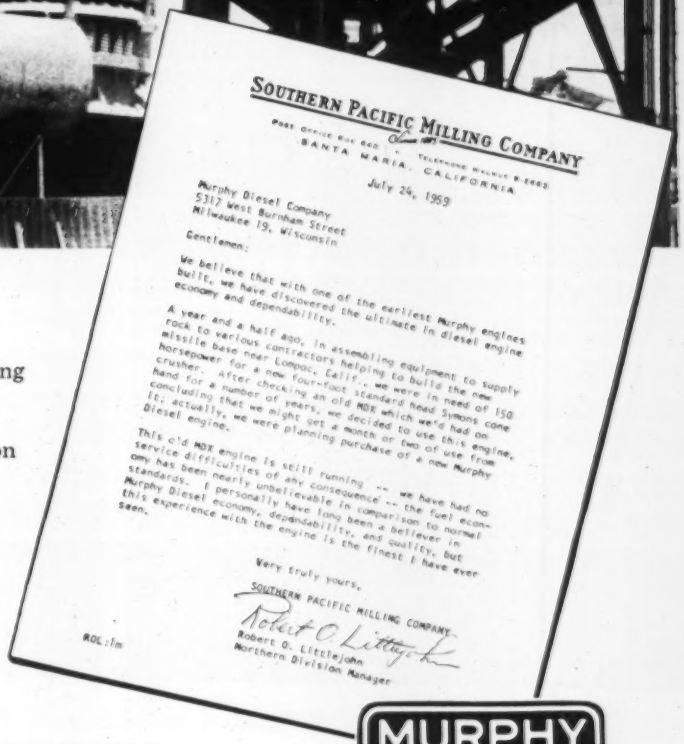
21 YEAR OLD MURPHY DIESEL STILL GOING STRONG!





SOUTHERN PACIFIC MILLING COMPANY

Post office box 660 — Telephone Wisconsin 8-6963

SANTA MARIA, CALIFORNIA

July 24, 1959

Murphy Diesel Company
5312 West Burnham Street
Milwaukee 19, Wisconsin

Gentlemen:

We believe that with one of the earliest Murphy engines built, we have discovered the ultimate in diesel engine economy and dependability.

A year and a half ago, in assembling equipment to supply rock to various contractors helping to build the new missile base near Lompoc, Calif., we were in need of 150 horsepower for a new four-foot standard head Symons cone crusher. After checking an old MDX which we'd had on hand for a number of years, we decided to use this engine, concluding that we might get a month or two of use from it; actually, we were planning purchase of a new Murphy Diesel engine.

This old MDX engine is still running -- we have had no service difficulties of any consequence -- the fuel economy has been nearly unbelievable in comparison to normal standards. I personally have long been a believer in Murphy Diesel economy, dependability, and quality, but this experience with the engine is the finest I have ever seen.

Very truly yours,

SOUTHERN PACIFIC MILLING COMPANY

Robert O. Littlejohn

Robert O. Littlejohn
Northern Division Manager

ROL:lm

Proof that Murphy Diesel saves you money

This early model Murphy is still earning its way! According to the owner, it is operating efficiently with fuel economy that is "nearly unbelievable in comparison to normal standards." The experience of Southern Pacific Milling Company with this 21-year-old Murphy is the best evidence that operators who want "the ultimate in Diesel engine economy and dependability" are wise to choose Murphy.

Twenty-one years of improvement in diesel engine design and construction make today's Murphy Diesel first choice for always-dependable, low-cost operation.

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Murphy Diesel engines and power units are available in sizes from 96 to 264 H.P. with engine speeds of 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 64 to 165 K.W.

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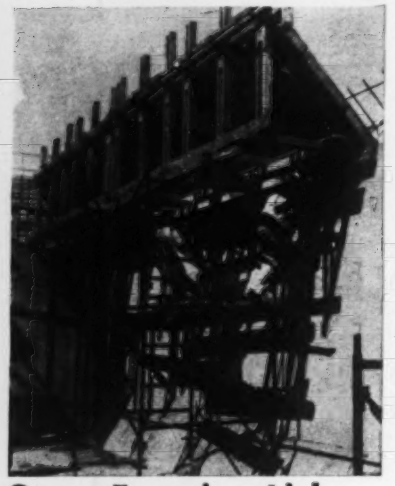
SALES . . . PARTS . . . SERVICE

Throughout the Nation

"Y" Wall Forming

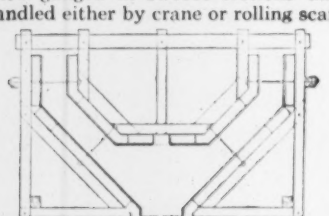


Gang Forming Licks "Y" Wall Problem

Pays Off in Quality Pours, Speed and Reduced Costs

2,665 lineal feet of "Y" walls and half "Y" walls, with 16'-9" high walls on a tank addition to a sewage treatment plant—that was the pouring problem faced by contractors, Wander & Mason of Worthington, Ohio. They solved the problem by pouring the walls in three lifts with the forms ganged for the final "Y" and half "Y" pours.

On the "Y" walls Symons standard panels, fillers, inside and outside bay corners, which were eight feet long, were ganged in 16-foot sections and handled either by crane or rolling scaf-



Typical "Y" wall section. Symons panels, fillers and bay corners were gang formed in sections.

folding. One 16-foot outside section was stripped, moved to the next wall section and reset by three men in 20 minutes.

Symons Forms, Shores and Column Clamps can be rented with purchase option. Information on Symons products is available upon request.

Symons

SYMONS CLAMP & MFG. CO.
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EIGHTY-FIFTH YEAR OF PUBLICATION

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3 more NORTHWESTS for American Construction Co. Hartford, Conn.

THE AMERICAN CONSTRUCTION CO., of Hartford, Conn., knows what a Northwest can do without testing, but the rocky digging for the basement of the G. Fox & Co. Department Store addition would have been a good test if they needed one.

The tough excavation was handled by a new 25-D, ¾-yd. Northwest Pullshovel. This was one of two new Northwests bought recently by American. These two new rigs made twenty-eight Northwests that American Construction Co. has bought in fourteen years—27 repeat orders that could only mean satisfactory performance; the kind of performance you want on your job.

There is a Northwest Pullshovel of the right capacity for any ditch or basement job you are figuring on. From the big 2½-yd. 95 down to the fast ¼-yd. Model 25-D, there is a size to answer your problem, whether it's reach, capacity or ability in tough rock digging.

The big 95 has a reach of 51 ft. It will bottom out at 32 ft. It brings you the pullshovel attachment weight and power to handle jobs that have stopped other equipment. Dippers fill and dump cleanly. Booms raise high to clear trucks, without banging side boards or spilling. Heavy-duty crawlers have been proven in the miles of travel often characteristic of pullshovel work. The Feather-Touch Clutch Control gives the true feel of the load and makes operation easy.

These and many other advantages combine to make one out of every three Northwests sold a repeat order with a satisfied customer. You will be interested in the newer Northwest developments. Ask a Northwest man to bring you up to date.

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SHOVELS
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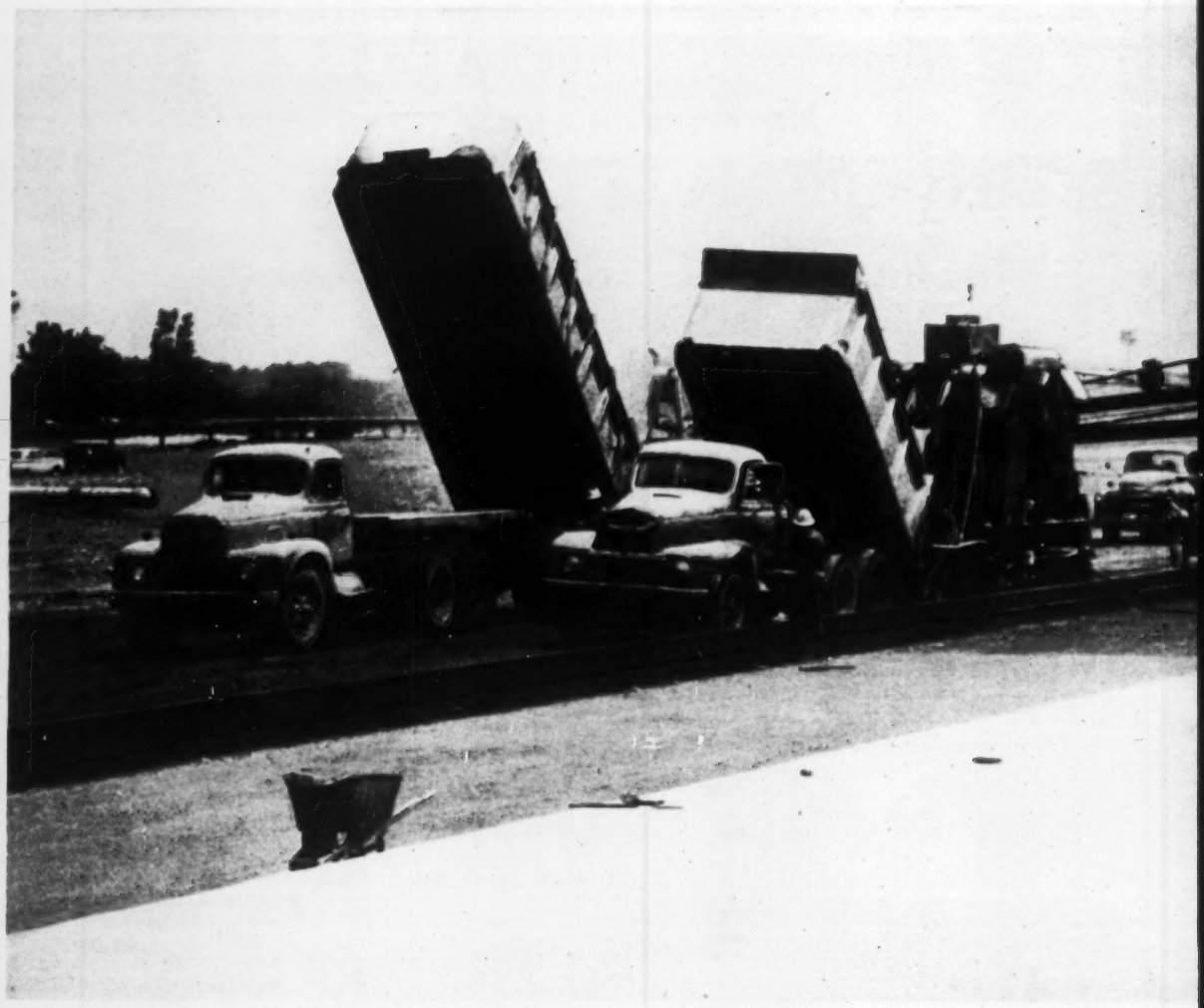

Western moved and replaced over 4 million yards of earth in building special $13,000,000 Jet runways for S.A.C. at Wright-Patterson A.F.B. Western is pushing for November 1959 completion of runway, ramp and taxi areas. They're using Texaco 100%.

Western uses Texaco Lube Plan

Problem: build a runway two miles long, two feet thick, and tough enough to take the landing shock of planes as heavy as a locomotive—a priority project that must be finished early in 1960. Western Contracting Corporation, Sioux City, Iowa, is moving ahead on this one right now, at the new $22-million Strategic Air Command Wright-Patterson Air Force Base near Dayton, Ohio. And to help make sure they finish on schedule, Western relies on a Texaco Simplified Lubrication Plan.

Here's how it works. The Texaco Plan cuts total lube inventory down to six products. That way, each of Western's lube rigs is a complete service station on wheels, able to lubricate every piece of equipment, wherever it is.

The low inventory Texaco Plan cuts chances for misapplication, too. It saves

Western's Texaco Plan enables mobile rig to handle all major lubrication in the field—eliminates wasteful deadheading.

to pave the way for S.A.C.

manhours in storage and handling. It cuts paper work in ordering. And every lubricant in Western's Texaco Plan was chosen to meet the specific requirements of the job.

Cut costs on *your* next job. Get all the facts on the Texaco Simplified Lubrication Plan from your Texaco Lubrication Engineer, or write:

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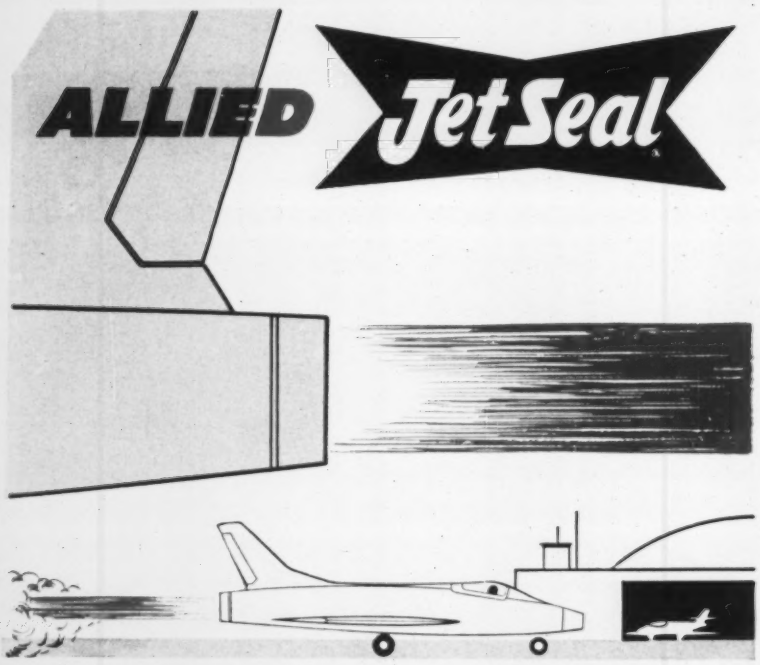

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JET SEAL 9015M is positive in adhesion, cohesion, resilience and ductility at low temperatures (−20°F). Compact application equipment, exclusively developed by Allied, automatically proportions, mixes and places the material in the joint. And, curing time is rapid—construction can be opened to ALL traffic in one hour.

Allied JET SEAL 9015M has no flow and is designed to outlast presently used J.F.R. materials by as much as 500%.

Jet Seal's 2 components are contained in easy-to-handle 5 gallon pails.

For further information on this major advance in sealants, write to:

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Reader Comment

Air Drop Memories

SIR—Concerning the article, "Out of the Sky: Heavy Construction Equipment" (ENR Oct. 8, p. 24), I'd like to forward further information in regard to my personal experiences while serving in the 981st Engineer Construction Battalion, with headquarters at Camp Pickett, Va.

The 981st was extensively engaged in construction projects throughout the 2nd Army area. Because of the battalion's vast experience, it was chosen to play an active part in "Operation Test Drop," planned at the time to be the first and biggest experiment of its kind in the use of airborne methods for constructing advance landing fields.

Thus the 981st was transferred to Fort Bragg, N. C., in September, 1952, and attached to the 406th Engineer Brigade for an intensive period of training in a new function.

The first phases of "Operation Test Drop" began in late December, 1952, with various drop tests.

In the final phase of the exercise, in early January of 1953, 40 pieces of specialized construction equipment were dropped from Air Force C-119 "Flying Boxcars."

Two formations of aircraft, comprising 36 planes, parachuted 500 tons of heavy equipment on the final day of the test. The heaviest load dropped was a 21,000-lb bulldozer, which set a new weight record. A 15,000-lb scraper was also parachuted on the drop zone along with numerous heavy trucks and other assorted pieces of special equipment by men of the 612th Aerial Resupply Company and the 1st Aerial Port Operations Squadron. Thirty-six pieces were operative directly after unloadings, but because of high winds, the release mechanism on four truck parachute rigs did not function properly, and they suffered superficial damage from being dragged over the ground. An additional 90 tons of cargo were subsequently dropped for the building of the airhead, which began with men from the 981st ECB, the 618th Light Equipment Company, the 64th Field Maintenance Company, the 20th Engineer Combat Battalion and the 406th Engineer Brigade.

I was directly engaged with one of the 981st companies in the drop and assembly of a complete quonset hut, which was parachuted in two large

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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PUTTING BIG-TIRE KNOW-HOW TO WORK—From the world's greatest fund of experience in building pneumatic tires, Goodyear Big-Tire Specialists are uniquely qualified to help you. AND provide you with the *proved* best in tread and body designs, in rubber compounds, and *triple-tough* 3-T Nylon Cord—greatest tire saver in 24 years.

SETTING UP BIG-TIRE SERVICE—If desired, Goodyear Big-Tire Specialists will also set up a tire-maintenance program to help save you man-hours, machine-hours and useful tire life. Goodyear Contractor Service will travel with your job—handle all your tire maintenance and repair needs.

With BIG-TIRE PERFORMANCE Example: HARD ROCK LUG

Typical of Goodyear having the right tire for every need, the Hard Rock Lug (pictured here) is built for heavy loads and no roads to make the going easy. Extra-thick, extra-tough lugs speed the work and shrug off the most brutal use. Made with special cut-resisting rubber compounds, Hard Rock Lug is made to order for the roughest off-highway service.

For all the details on this, other Goodyear special-duty tires, and the Goodyear Contractor Service program, see your Goodyear dealer—or write Goodyear, Truck Tire Dept., Akron 16, Ohio.

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The addition of Nichols Construction Company, Inc., Baton Rouge, La., (now Nichols-Southern Division, Yuba Consolidated Industries, Inc.,) is an important step in broadening Yuba's field erecting services to industry in the expanding southeast and lower midwest markets.

Long a leader in this area, Nichols-Southern now joins the nationally-known Yuba subsidiary, Yuba Consolidated Erectors, Inc., significantly increasing Yuba's scope and capabilities nationwide.

Two current projects help illustrate Yuba's nationwide range of activity: Fabricating and erecting the $2.1 million bridge across the river at Buffalo, New York, and a $14.3 million contract to fabricate and erect the Martinez-Benicia Bridge across upper San Francisco Bay in California.

This same service is offered nationwide for all types of plate and structural steel fabrication and erection, for all industries... on large projects and small... on land or water... anywhere. For additional information please phone, wire or write.

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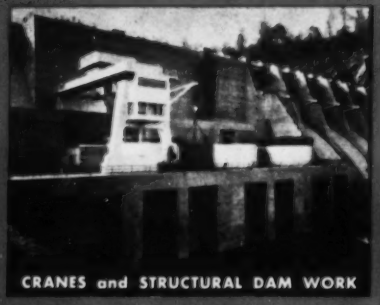
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MULTI-STORY BUILDINGS

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STACKS and STRUCTURAL

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Building? MVSS has complete fabricating and erection divisions in 7 cities. All divisions can be integrated just like this to rush your job through to swift completion *... anywhere ... anytime!*

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DW20A "Grid" Compacter.

COMPACTION COSTS CUT TO 3¢ A YARD WITH HYSTER HIGH SPEED COMPACTERS

Many contractors, working on earth moving projects throughout the country this year, have obtained amazing results with their Hyster DW20A high speed Compacters. Drastic cuts in compaction costs have been experienced—resulting in costs of less than 3c a yard in some cases.

Be ready to reduce compaction costs on your own jobs next season with the Hyster DW20A Compacter with exclusive wheel design which makes possible the high-speed rolling that results in lowered cost. Detailed job reports and machine specifications at your Caterpillar-Hyster dealer.

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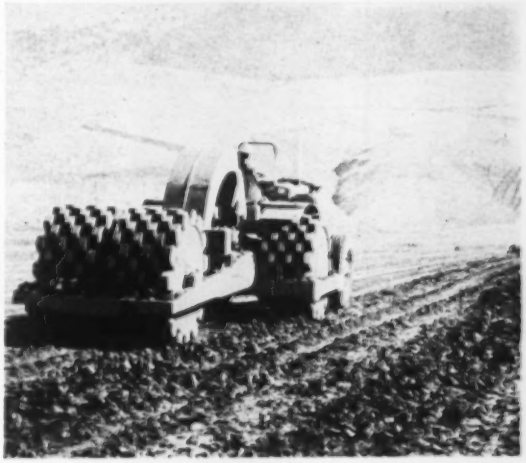

Model DW20A Compacter is also available with tamping wheels.

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TRACTOR EQUIPMENT DIVISION

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11% Ahead at

Phillips (left) and Morgan (center) show Williamson how planned lubrication prevented equipment breakdowns.

Williamson (left) and Morgan go over important lubricating points of truck used on Dyberry job.

Winter Shutdown!

Mobil PM System Given Credit by Hunkin-Conkey for Helping Speed Up Dyberry Flood Control Dam and Reservoir Project of U. S. Army Corps of Engineers

WHEN Hunkin-Conkey Construction Company, Cleveland, O., closed down operations for the winter at the Dyberry Flood Control Dam and Reservoir near Honesdale, Pa., it was 11% ahead of job schedule. Exclusive use of the Mobil PM System and Mobil products, resulting in better maintenance organization and performance, is given a large share of the credit for this fast progress by Frank S. Morgan, Hunkin-Conkey's General Superintendent on the Dyberry job.

Major equipment in use at the Honesdale project includes 12 Euclid trucks, seven bulldozers, three mixer trucks, two tractor-mounted drill rigs, two 2½-yard shovels and a one-yard drag-line. Planned lubrication made possible the steady, day-after-day availability of this equipment—an important factor in helping Hunkin-Conkey keep ahead of schedule.

This case history clearly demonstrates the practical value of Mobil's PM System and Mobil products for contractors in saving valuable job time . . . boosting job profits . . . and in keeping their equipment working on the job *all through the job!*

R. G. Williamson, local Socony Mobil representative (center), checks Mobil PM System equipment sheet with General Superintendent Frank S. Morgan and Equipment Superintendent L. C. "Joe" Phillips.

Available—film on equipment safety, maintenance. Call nearest Socony Mobil office.

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2. **Operator's Recommendation Chart**—lists the correct lubrication recommendations for each piece of equipment.
3. **Weekly Service & Inspection Report**—an up-to-date record of condition of equipment, work to be done or completed.
4. **Delivery Ticket**—lists petroleum supplies delivered to equipment on the job.
5. **"Squawk" Sheet**—used by equipment operator to point out trouble spots that may need immediate attention.

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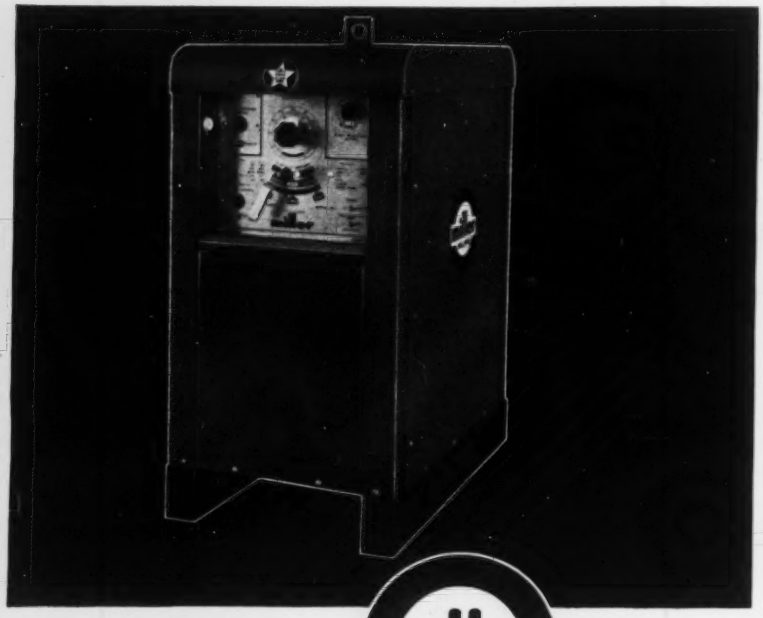

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. . . . becomes evident after sufficient exposure to the original cost/maintenance costs/production/profits equation.

Exploiting the full potential of better basic design, the Miller Gold Star 300 series ac-dc welders convert in minutes from the prime ac-dc welder of exceptional performance to any of these three A-C applications: Metallic Arc, manual or automatic Inert Gas; or, to any of the following D-C applications: Metallic Arc, manual or automatic Inert Gas, or Inert Gas spot welding.

It's important to note that the Miller conversion kits utilized to obtain any of the above simply extend the built-in superiority of the 300 series' welding characteristics into the type of application desired. It's adaptable by design — not discovery.

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. . . Reader Comment

loads via two 100-ft chutes on each load. Unfortunately, one of the loads was a "streamer," (one chute only partially inflated) and some of the steel numbers were badly bent from the impact. We straightened them by hand, assembled the hut and prepared it for use, all in 18 hours.

"Operation Test Drop" concluded successfully, answering most of the questions posed before this first time experiment was attempted.

Although our test was not equal in size to the recent Kentucky air drop, considering the almost seven years gone by and the equipment available at the time it was a noteworthy feat.

GILBERT A. BONFORTE
Tippetts-Abbett-McCarthy-Stratton
New York, N. Y.

Shelters: A Palliative

SIR—May I add an enthusiastic, "Amen!", to your editorial notes replying to the two letters advocating a bomb shelter program (ENR Sept. 17, p. 32, 33).

The lighthearted view of Mr. Le Doux ("Perhaps only 10 million would die . . .") reveals an attitude adapted more to the Bronze Age than to the Space Age. The other writer, Mr. Papp, poses a good simile to the problem of modern war in cancer research but, as you point out, he misapplies the analogy. Just as cancer is an individual disease, so war is a collective disease of mankind.

In contrast, a bomb shelter program is a mere palliative—and a fantastically expensive one.

War is no longer a bad institution; it is an impossible one. We should expend our major efforts in combatting war, not on futile programs which imply resignation and surrender to it.

C. W. GRIFFIN
Erlton, N. J.

For Your Calendar . . .

National Building Materials Distributors, annual convention, Edgewater Beach Hotel, Chicago, Ill., Nov. 16-18. Write: D. B. Richardson, Richardson Lumber Co., Denver, Colo.

Structural Clay Products Institute, silver anniversary convention, Greenbrier Hotel, White Sulphur Springs, West Va., Nov. 16-18. Write: Structural Clay Products Institute, 1520 18th St., N. W., Washington 6, D. C.

Building Research Institute, fall meeting, Shoreham Hotel, Washington, D. C., Nov. 16-19. Write: National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C.

American Institute of Steel Construction, annual meeting, Boca Raton Club, Boca Raton, Fla., Nov. 30-Dec. 3. Write: L. A. Post, AISC, 101 Park Ave., New York 17, New York.

Paper and Paperboard Industrial Waste Conference, Edgewater Beach Hotel, Chicago, Ill., Dec. 1-2. Write: Russell L. Winget, Executive Secretary, National Council for Stream Improvement, Inc., 271 Madison Ave., New York 16, N. Y.

Fourth Midwest Symposium on Circuit Theory, Marquette University, Milwaukee, Wisc., Dec. 1-2. Write: Stanley Krupnik, Jr., Assistant Director, Electrical Engineering Department, Marquette University, Milwaukee 3, Wisc.

All structural steel in the Perry Street Wharf—shown here under construction—is protected above and below deck level with a Red Lead primer.

RED LEAD Protects New Docks and Warehouses at Port of New Orleans

The busy, historic Port of New Orleans is getting a new look. A bustling complex of eight new wharf and warehouse structures are now completed or under construction.

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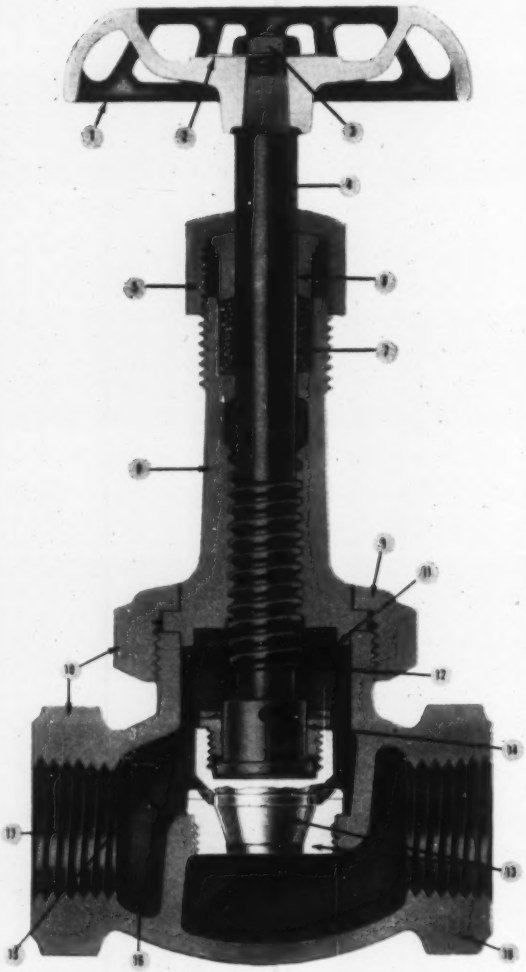

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

BAD MONTH—Tight money, cutbacks in federal highway aid and the long steel strike will make this month the worst October for new contracts since 1954. Indications now are that the average weekly volume will be about $300 million, just a trifle better than January's low for the year.

BRIDGE FAILS IN TUSCANY—A 240-ft-long steel girder bridge on Italy's Highway of the Sun collapsed, last week, killing four paving workers. The bridge, under construction for the past year, stood 147 ft above the Lora River, near Florence (ENR Aug. 21, p. 58). The cause of the collapse is not yet known.

QUIET PILE DRIVING—The old Western custom of preboring for piles is beginning to spread eastward. A Brooklyn contractor is going to prebore for soldier beams for a New York City sewer excavation. T&T Contracting Corp. will sink 18-in. holes 40 ft deep with an earth auger, insert steel H-sections and backfill. He will then excavate and place wood lagging.

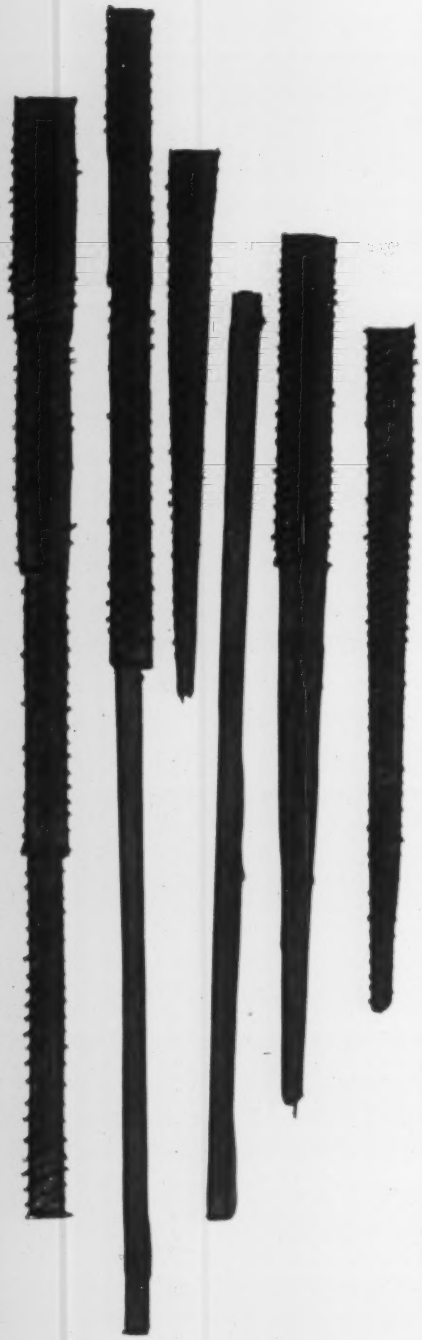
A TREND FOR RAILS?—A Connecticut legislator last week proposed converting the New Haven Railroad's short haul trackage into a rapid transit system between New Haven, Conn., and New York City. State Senator Norman Hewitt suggests forming a bi-state authority that will issue bonds to finance the system. (The story of how Boston has successfully converted an abandoned section of railroad track to rapid transit will appear in ENR next week.)

CONTRACTS IN THE MAIL—The Post Office Department will need $1.5 billion worth of new buildings in the next 20 to 25 years, according to the U.S. Department of Commerce. That amount will pay for construction of 14,000 new buildings.

UP TO THE VOTERS—Construction bond proposals of more than $1.1 billion will be on ballots next week. Largest volume would go to school construction—$961 million. That's more than double the amount proposed for schools in each of 1958 and 1957.

SEWAGE SNOOPERS—Louisville sewage treatment plant will be protected from improper waste products by an "industrial waste party," which will check on wastes put into the sewers by industrial plants and determine whether present regulations are adequate.

POWER PLANT IN PARADISE—The Tennessee Valley Authority is starting preliminary site work for a $100-million steam power plant at Paradise, Ky., a hamlet of 65 persons about 85 miles from Nashville. The installation will incorporate the world's biggest turbine-generator—a 600,000-kw unit being built by General Electric.

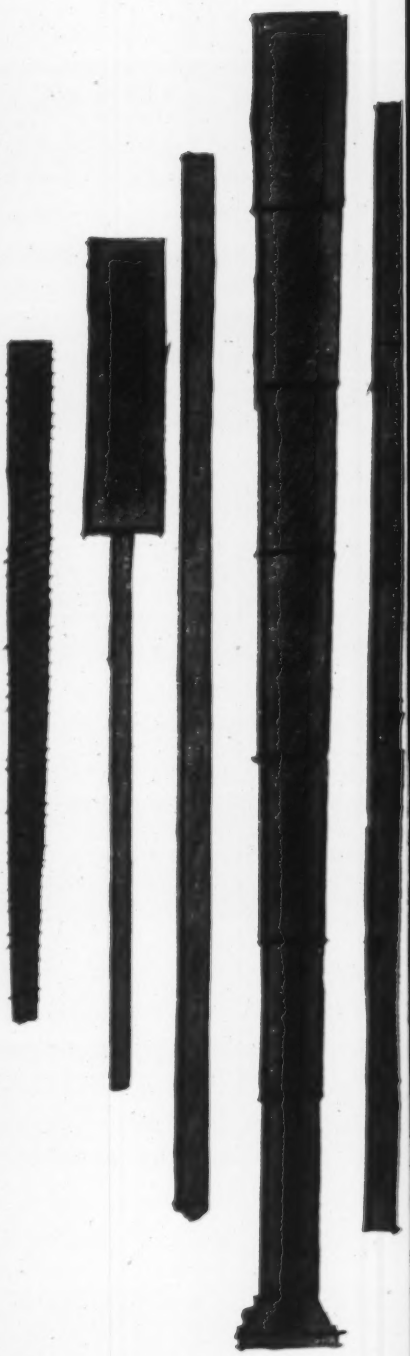


The surprising 109 by Raymond

Came as a bit of a surprise the other day, when somebody sat down and totted up the types of piles regularly driven by Raymond. It totaled 109, and of these 75 are of Raymond's own design and manufacture.

This points up two important construction facts: foundation requirements have become extremely specialized; and Raymond has the experience and materiel to meet these requirements. Over the years we have developed foundations for every conceivable type of structure, to meet every subsoil condition. As new problems arise, Raymond will continue to design, manufacture, and install pile foundations that enduringly serve their purposes.

For detailed information on the many types of Raymond Piles and our other services here and overseas, call or write for Catalog S-60.



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WASHINGTON OBSERVER

- **Trust Fund takes first Treasury loan**
- **Pump priming: No cure for recessions?**
- **Mountain Sheep Dam moves a step ahead**

- **The Highway Trust Fund has borrowed $145 million from the Treasury's general fund.** It is the first tap of the general fund to be made under the $359-million limit of "repayable advances" that Congress provided for this year to ease the federal-aid road program over its current dollar shortage.

  The Administration has made it clear that all advances made to the Trust Fund must be repaid this fiscal year. When Congress passed the measure, however, it didn't spell out a specific date for repaying the money borrowed from the Treasury.

  The Bureau of Public Roads had to have the additional money from the Treasury to pay monies due the states for October bills. As of September 30, the Trust Fund only had some $21.4 million in undisbursed funds. Besides the $145-million Treasury loan, another $200 million will be pumped into the fund from tax receipts from gasoline, tires, tubes, etc. But even the over-all total of around $366 million may fall short of expenditures and force BPR to go back to the Treasury for another loan to pay October bills. This is pretty much what the experts have been predicting, however.

  In September, for example, some $201.4 million went into the Trust Fund, but some $406.3 million was paid out. It reduced the Trust Fund balance to $21.4 million.

- **Economic planners are making a critical review of government decisions that make construction the target of shifts in economic policy.**

  Today tight money is curtailing construction as the Federal Reserve and the Administration try to forestall another round of inflation. But two years ago the policy was just the reverse. To halt a recession, construction was being rapidly expanded with billions of government dollars.

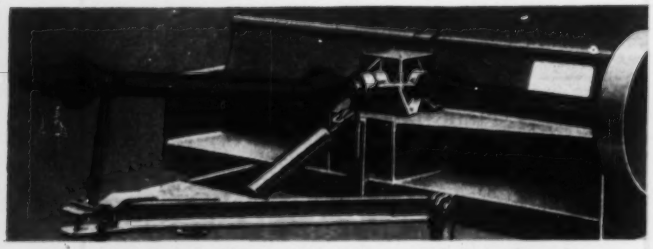
  Swings of this kind occurred three times in the past 10 years with construction bearing the brunt each time.

  This week the Administration's top-level, anti-inflation committee headed by Vice President Richard M. Nixon, came out for a policy that would smooth out the impact on construction.

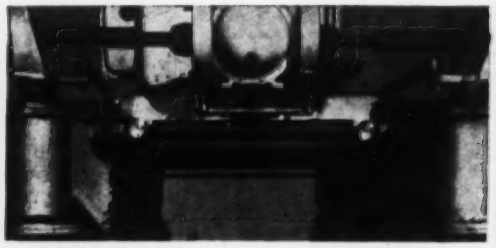
  The Nixon committee now opposes government spending as a means of checking minor recessions, and also says tight money alone cannot halt inflation. It favors big budget surpluses to aid the anti-inflation fight.

  The Joint Economic Committee of Congress, under Chairman Paul Douglas (D., Ill.), heard similar proposals this week from a series of leading economists.

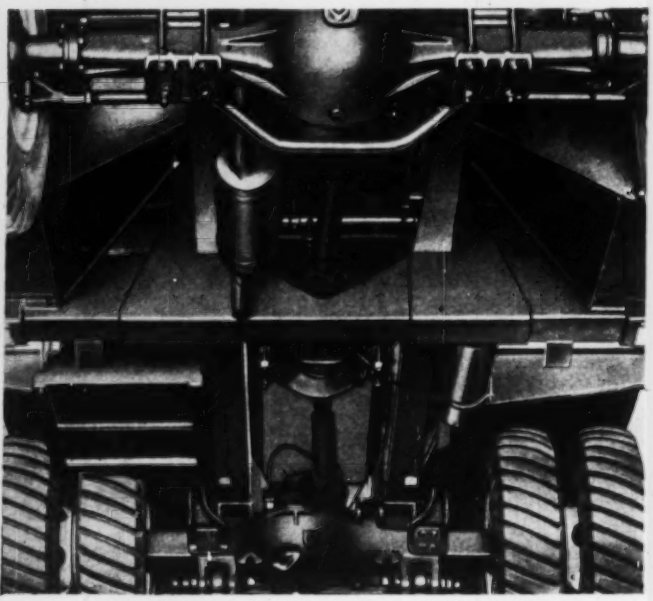
- **The wheels are beginning to turn on the revised applications for High Mountain Sheep Dam on the Snake River,** on the Idaho-Oregon border. The Federal Power Commission has accepted Pacific Northwest Power Company's newly completed application (ENR Oct. 8, p. 26) to build a $178-million hydro project below Hells Canyon. Interveners who want to testify in an examiner's hearing on the project must file with the FPC by December 4. Hearings probably will begin in late January. The proposed dam would be 690 ft high, generate 2-million kw of power and impound a 17,200-acre lake.



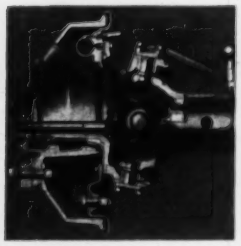
Shielded Farm Implement Drive, Tractor P.T.O. to Gear Box



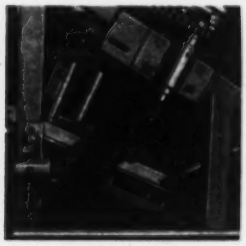
Differential to Drive Sprocket, Straddle Truck



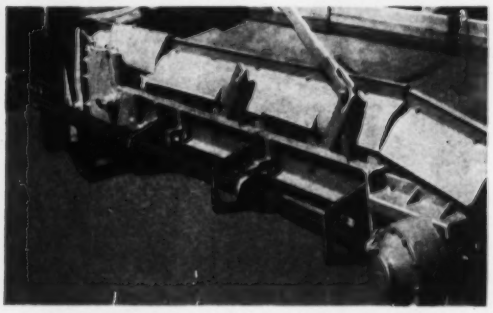
Mobile Crane, All-Wheel Drive Propeller Shafts



Jointed Front-Driving Axle



High Angle, Double Joints



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What ASCE Did in Washington

At their annual meeting in Washington, D. C., last week, more than 1,500 members of the American Society of Civil Engineers heard:

- A Bureau of Public Roads official express confidence that investigations into federal-aid highway construction won't mutilate or delay the program.
- An urban renewal official stress need for greater coordination between highway engineers and city planners.
- Experts present a roundup of irrigation and drainage projects under construction and planned around the world (see p. 22).
- Structural designers tell how far they've taken composite design of steel and concrete.
- West Virginia's Gov. Cecil H. Underwood make a pitch for underground industrial use of his state's worked-out limestone mines.

They heard these things and many more in a full week of technical and professional programs that played largely to full rooms.

The Navy's "big ear," the radio telescope at Sugar Grove, W. Va., was described by Capt. Frank C. Tyrrell, officer in charge, as going into the erection stage on schedule despite the steel strike. Steel erectors last week topped out the first of two 430-ft erection towers, 90 x 90 ft in cross section. Captain Tyrrell said the Bureau of Yards and Docks and its contractors are confident of meeting their 1962 completion date (ENR Oct. 15, p. 40).

The Atomic Energy Commission's $300-million annual program was described by AEC Commissioner John F. Floberg with this encouraging word for his engineer audience: The role of the architect-engineer as coordinator of power reactor projects is growing stronger; nuclear consultants are taking a smaller, more specialized part, and manufacturers are assuming somewhat the same role they play in conventional power plant construction. The architect-engineer's ability to evaluate types of nuclear plants and to provide construction management will assure him more and more contract work in the atomic energy field, Mr. Floberg said.

• BPR unworried—On the current question of Presidential and Congressional investigations into the road program, BPR's Francis C. Turner, deputy commissioner, expressed confidence the program can stand scrutiny.

THE PRESIDENT stood still long enough to accept an Award of Merit from the American Institute of Consulting Engineers* during ASCE's Washington meeting.

He was equally confident in the legality of the "reimbursement planning" instituted this month to keep expenditure of federal funds within federal ability to pay. He said he knew of no official action to test legality of the contract controls, although he has heard that a couple of states might challenge them (ENR Oct. 2, p. 21).

Mr. Turner assured the meeting that reimbursement planning is a temporary expedient that will end when Congress enacts permanent financing for the road program in 1961. He predicted that 1961 would be a brighter year, reminding his audience of the basic reports Congress will have received then as guidance on financing the remainder of the federal-aid highway construction program.

• Urban renewal—ASCE's Highway and City Planning divisions met jointly to discuss greater coordination of their interests.

William R. Ewald, Jr., assistant commissioner of the Urban Renewal Administration, Housing and Home Finance Agency, sounded the challenge. He called the Interstate Highway System the new bloodstream around which the skeleton of America will be reconstructed.

Willard F. Babcock, North Carolina's state highway director, told of new legislation in his state to assure coordination of state roads with city plans. It has created an advanced planning staff within the highway department. The staff includes experts in economics and sociology, as well as traffic engineering.

• Composite design outlook—Structural Division sessions heard how far designers are carrying composite design. Applications to footing-column, column-girder, girder-beam and beam-slab designs were described.

Parking garages, shopping centers and a stadium, used to illustrate composite design, indicated the range of applications.

Aaron Garfinkel of Garfinkel and Marenberg, New York City consultants, expressed preference for welded studs over spirals as shear connectors, field welding over shop welding for these studs. (They get in the way during delivery and erection, he said.)

Recommendations for design of composite beams and girders in buildings are soon to be issued jointly by ASCE and the American Concrete Institute.

• A place to hide—Civil defense and defense mobilization had the city planners' intense interest at this ASCE convention. The society is to set up a coordinating committee on research and planning for underground facilities—safe from atomic bombs.

Governor Underwood stressed the importance of planning underground facili-

* Making the presentation (from left): Ole Singstad, Francis Friel, Hershel Allen, Gerald McCarthy, the President, Scott Turner, Emil Praeger and George Richardson.

ties. West Virginia just happens to have a stratum of limestone 100 ft thick and 600 to 1,000 ft deep.

This readily mined rock stands without support or lining in workings that stretch out to 20 acres and up to 30 ft high. Pillars of the rock, 15 ft in dia, are left standing at about 80-ft centers.

The ASCE program had considerable international flavor (principally in its irrigation and drainage symposium), but it also had heavy participation by top personnel of federal agencies.

Navy's BuDocks had talks on dry docks, on Spanish base construction and on the radio telescope.

And as a major luncheon speaker, Lt. Gen. E. C. Itschner, Chief of Army Engineers, described his efforts to foster professional status through registration and society participation among both civilian and military members of the Corps staff. Some 27% of all engineering employees are now registered professional engineers and a steady increase in professional caliber of Corps people is evident, said General Itschner.

Professional registration of engineers was also discussed in a session on the model law, which ASCE is trying to help revise. Lively discussion showed the divergence of opinion among members on the controversial corporate practice question.

Indications are that the Committee on Registration will try to get the National Council of State Boards of Engineering Examiners to write into the revised model law a provision for the legal practice of engineering by licensed individuals who organize as a corporation rather than in partnership.

Frank A. Marston, senior partner in Metcalf & Eddy, took over presidency of ASCE from Francis S. Friel (see p. 45). Next October's annual meeting will bring ASCE to Mr. Marston's home town, Boston.

How Irrigation Needs Are Growing

Construction of more than $900 million worth of irrigation works within a 10-year period will result from current negotiations between India and Pakistan.

That prediction was made by Royce J. Tipton, Denver consulting engineer, before a session of ASCE's Irrigation and Drainage Division. The paper was part of a three-day symposium on worldwide irrigation.

Setting the stage for the symposium, Prof. N. A. Christensen of Cornell University pointed to the growing influence of U. S. engineers in overseas irrigation developments.

Irrigation problems on the Indus River in West Pakistan began when India was granted independence and Pakistan became a separate country. Provision was made for allocation of the Indus, which has several tributaries originating in India. Construction of works such as Bhakra Dam on the Sutlej River (an Indus tributary) inside India has helped bring the matter to a head.

Mr. Tipton said the India-Pakistan negotiations are nearing completion. In prospect is an agreement on a $900-million, 10-year program to provide the necessary facilities for dividing the river's waters.

He called the program the largest irrigation works construction effort in world history. But he pointed out that to meet its total needs, Pakistan should spend hundreds of millions more—partly to reclaim waterlogged and saline lands, partly for dams and reservoirs to provide supplemental water supplies.

India's irrigation problems were described by Prof. Alfred C. Ingersoll of the California Institute of Technology. He said India faces a potential food crisis that would dwarf all famines in her history, despite the fact that India is second only to China in the number of acres under irrigation annually. To meet growing food needs, India will continue to develop new works.

In Iraq, which has a 6,000-year history of irrigation on the Tigris and Euphrates rivers, the government needs to do much additional development of irrigation works, according to Prof. Stanley S. Butler of the University of Southern California. He termed the land of Iraq potentially fertile and productive when properly irrigated, but Iraq's future irrigation projects depend on peaceful cooperation with neighboring Syria, Turkey and Iran, who control nearly all the headwaters of Iraq's rivers.

Much development work had been under way by the Iraq Development Board using oil revenues and U. S. advice. But after the July, 1958 political shakeup, almost all the American engineers were asked to leave. Their place has been taken by Russians.

Even humid countries need irrigation works, the group was told in discussions of Ceylon and Central America. Philip P. Dickinson, technical assistant to Senator Clair Engle (D., Calif.), said that most of Ceylon averages over 100 in. of rain a year. Yet irrigation has been practiced on the island for over 2,000 years. Most of the rainfall comes during two rainy seasons, and the major crop is rice, which requires a continuous controlled water supply.

In Central America, according to Lyman S. Willardson of the Department of Agriculture's research service in Logan, Utah, irrigation is important in humid Honduras for banana growing. Bananas have a 12-month growth cycle and require adequate moisture and drainage to produce good fruit. Mr. Willardson reported that Puerto Rico has been slow to develop irrigation because the major crop—sugar cane—can be grown with little or no supplemental water. He said that with irrigation Puerto Rico would have great potential for diversification of agriculture.

A Boost for Engineering Schools

"In the last two decades, a revolution has been under way in the practice of engineering, yet engineering education—the gateway to professional practice—has lagged behind.

"In a hopeless race against time and reality, most engineering students in their late teens and early twenties are being equipped for the engineering of the last half of the twentieth century by being indoctrinated with the art and practice of the 1950s."

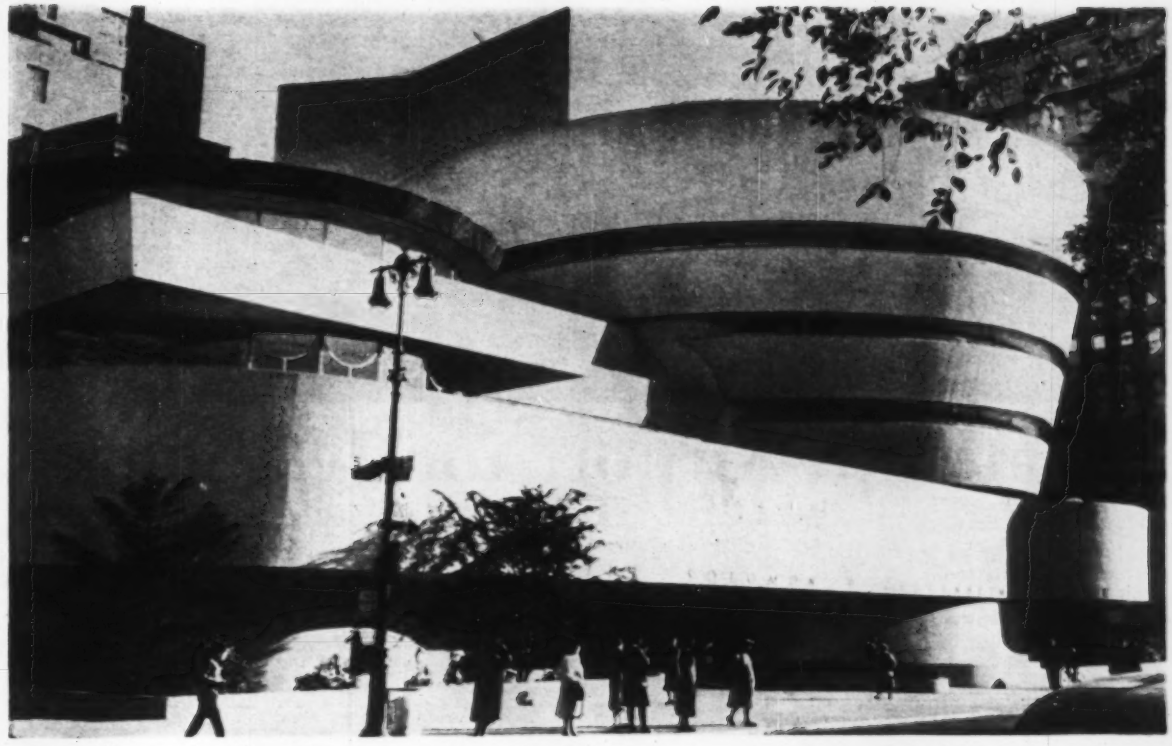
With those sobering words, Ford Foundation President Henry T. Heald last week announced grants totaling $19,050,000 for the advancement of engineering education. The awards will be shared by 10 institutions.

Mr. Heald told the annual dinner of the American Institute of Consulting Engineers in Washington, D. C., that the foundation's awards are aimed at these two objectives:

- To support promising plans for development of and experimentation with imaginative educational programs.
- To help develop and further excellence on engineering faculties, both by additional training of present faculties and by recruiting and developing increased numbers of well-trained engineering teachers.

Mr. Heald urged that engineering education impart "a thorough understanding of science and mathematics, their frontiers, and how they may be applied to the needs of mankind."

The biggest grant, $9.3 million, went to Massachusetts Institute of Technology. California Institute of Technology was granted $3.2 million; Carnegie Institute of Technology, $2.2 million; University of California and University of Michigan, $1.2 million each; University of Illinois and Purdue University, $275,000 each; Stanford University and University of Wisconsin, $200,000 each.



Wright's Museum Sparks Debate

How well does it do its job?

That was the chief question asked last week as New York City took its first look inside a controversial Frank Lloyd Wright project.

The debate started when the Solomon R. Guggenheim Museum opened after 13 years of planning and three years of construction. It was built to house a collection of modern art.

Critics say the reinforced concrete museum overshadows the paintings it was designed to exhibit—too much mass, too many sweeping lines. And they think a spiral gallery is a poor place to hang a picture.

Supporters ranged from those who say, "It's a wonderful museum," to those who believe the building design is so unique and exciting that its effect on the art collection is minor.

Whatever the architectural merit, the circular museum was a difficult construction job. Its curving walls and spiraling, cantilevered ramps have few plane surfaces, ordinary joints or level sections of floor (see p. 104). Euclid Contracting Co., New York City, was the builder (ENR Dec. 5, 1957, p. 42).

Even as it stands, the structure wasn't built as Mr. Wright hoped. He wanted it in a park. Instead it's crammed on a comparatively small lot (128 x 201 ft) between two side streets.

Spiral gallery winds one-third of a mile up the building.

A Satellite Airport for Jet Liners

Los Angeles is adapting its international airport to the jet age by rebuilding it as a satellite system.

The $46-million development project will result in a decentralized airport layout aimed at eliminating the conventional finger concourses and offering greater freedom of movement to a large number of airliners on the apron. The project is scheduled for completion in March, 1961.

The dominant structure in the system, the theme building, will be a $1.7-million mushroom-shaped tower that will appear to hang from two huge parabolic arcs intersecting 135 ft above the ground.

The theme building will be erected in the center of a rectangular, 5,000-car parking lot. The lot will be depressed one story below apron level.

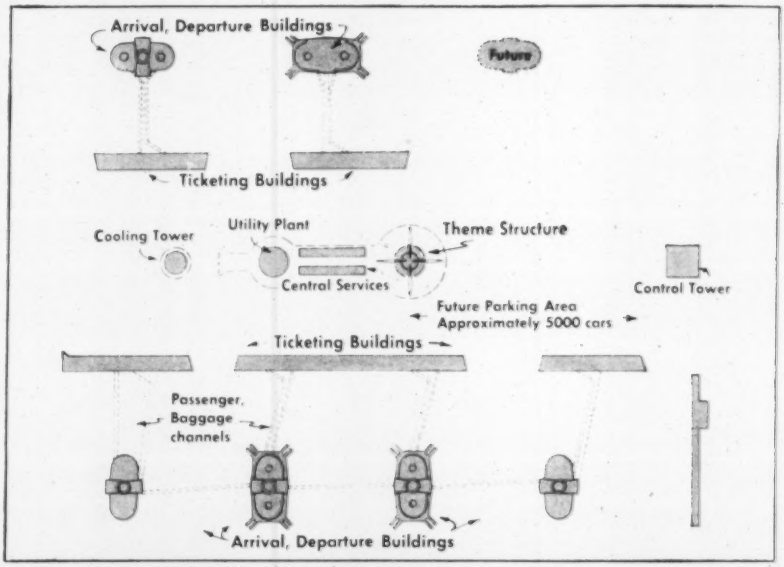
Six airline terminal buildings will be built around the perimeter of the parking lot. Beyond the perimeter, out on the apron, will be seven satellite structures—arrival-departure buildings.

Arriving passengers will walk from the parking lot to the terminal buildings for check-in. From there the passengers will walk, still at parking lot level, through a channel built under the apron to the satellite buildings. Conveyors will carry their baggage through the channel.

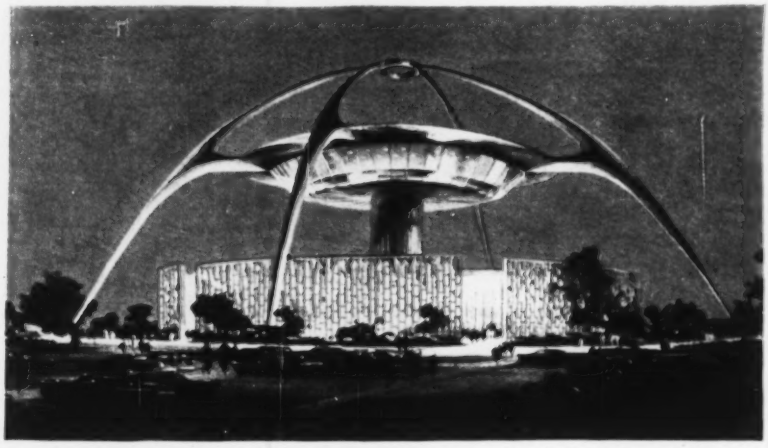
Moving stairways will carry passengers to the second story (above the apron) of the satellite buildings. From there they will board planes.

The two parabolic arches that will tower over the airport complex will be built of ⅜-in. steel plate encased in plaster and sprayed with a vinyl cover.

At ground level a rectangular building will house a kitchen and a commissary for all the field restaurants. A 34-ft-dia central concrete core will lead up 70 ft to the glass-enclosed main airport restaurant. The restaurant floor will be cantilevered off the concrete core by tapered steel girders. Trusses for the roof will be cantilevered off the girders that connect the parabolic arches.



Here's how Los Angeles' new airport will be laid out.



Theme building will house a restaurant in its glass-enclosed tower.

Opposing legs of the two arches will be tied at the bottom by 4½-in. steel rods held in place by the weight of the

central core, offsetting uneven load distributions.

The seven airline terminal buildings will operate as separate units. They will be two or three stories high, including a story at parking lot level, and about 500 ft long and 60 ft wide. Each will be of steel frame shear wall construction, with glass and aluminum fronts.

Los Angeles Department of Airports has not yet awarded a contract for construction of the satellite buildings, the airline terminals, the theme structure and other buildings in the complex. Lowest of five bids for the work was $19,240,000 from Robert E. McKee General Contractors, Inc., of Glendale, Calif. This was about 5% below second low bid.

The arrival-departure buildings, each connected by a 300-ft to 550-ft channel with a terminal building, will be elliptical in shape, 152 ft x 320 ft, and built on four levels, one below apron surface. Each satellite will have 10 gates.

Helicopters will load and unload passengers and refuel at gate positions around the satellites. Airline passengers arriving at other satellites who wish to hook up with a helicopter will have to travel some 1,800 ft to 2,400 ft. Public transportation is planned among the various terminal buildings, so that walking will be necessary only in the underground channels. These have been designed for future installation of moving sidewalks.

A new 8,925 ft runway and associated taxiway were completed in September at a cost of $1.8 million. An existing runway was lengthened from 8,500 ft to 10,000 ft and an additional 2,000 ft will be built onto it later. Another existing runway was extended from 8,500 to 10,115 ft.

Designers made impressive savings in the concrete work for taxiways, runways and aprons when they were able to show the Federal Aviation Agency that the present 60,000-lb equivalent single wheel load for giant airliners would not increase greatly in the future. FAA lowered its specification from 15-in. concrete to 12 in. Net savings on 1,060,000 sq yd of concrete will be about $1.3 million.

Other structures at the airport will include a 13-story, $1.4-million administration building and control tower, and a $3.1-million utility plant with a 34.5-kva electrical power supply.

S. B. Barnes & Associates and Richard R. Bradshaw, Inc., are consultants for the project. J. S. Hamel is mechanical consultant. Architects are Charles Luckman & Associates, Paul R. Williams, and Welton Becket & Associates. All are Los Angeles firms.

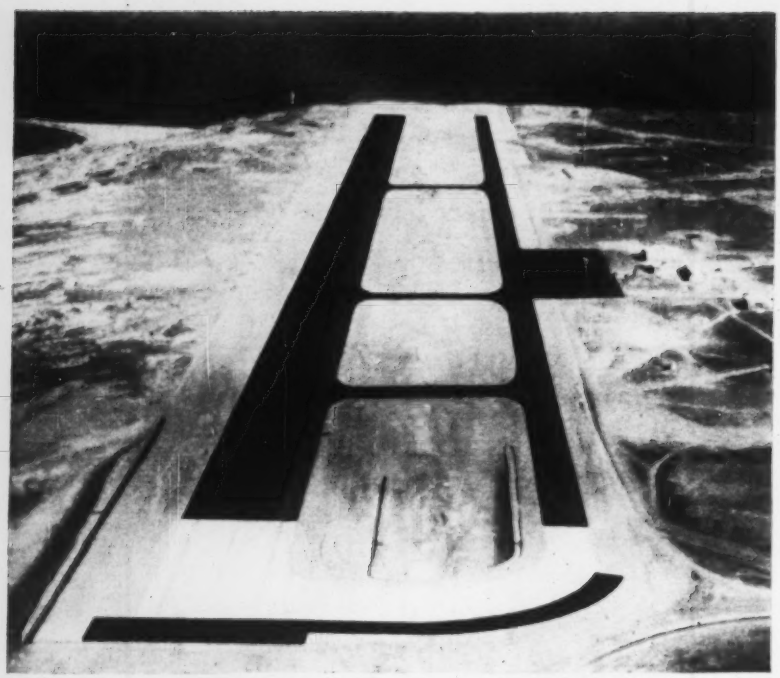
When the new air terminal is completed, the existing terminal will be converted to use for freight, charter and executive flights.

Slip Forms for Tower Erection

These towers are the start of a 13-story apartment building in San Francisco. Slip form techniques are being used. After the three stair and elevator towers are completed, 8,500-sq-ft pre-stressed slabs will be hoisted from ground level to form the building floors. Owner-contractor George P. Belcher is erecting the $2-million residential project.

Giant Roof Covers Plane Garage

The roof of the new major overhaul building now under construction for Northwest Airlines in Richfield, Minn., is big enough to cover five football fields. The $18-million base will have five hangars with a total frontage of 1,650 ft. Each of the hangar sections will be 320 ft wide and have four sliding doors. The building will contain 7,000 tons of structural steel.



For Jet Runway on an Island . . .

. . . Hot Mix Plant Came by Barge

The Navy is landing jet planes and recovering Regulus I guided missiles on a new blacktop runway on the tiny island of San Nicholas, off California.

But before the runway was completed, $400,000 went into barging equipment and material to the island, 90 miles offshore.

Work consisted of 10,000 ft of runway and taxiway; 1,000 ft of new asphalt runway, 500 ft of concrete at each end of the runway, and an asphalt overlay over 8,000 ft of existing asphalt pavement.

More than 50,000 tons of asphalt hot mix was supplied by Industrial Asphalt of California, Inc., to the contractor, Ball & Simpson, Berkeley, Calif.

But first Industrial Asphalt had to barge over a standard, 6,000-lb-capacity asphalt plant to produce the mix. The plant was specially arranged to feed four different types of materials.

Liquid asphalt and aggregate also had to be barged in during the work period. The trip takes 12 hours at best, but high winds, fog and treacherous seas often made deliveries of asphalt and aggregate irregular. Coordinating the plant operations with the paving schedule was, therefore, a difficult and constant problem.

The asphalt plant produced 250 to 300 tons per hour, which a Cedarapids paver handled with ease. The paver was set at 12-ft width for the base course and 10 ft for the finish course.

Base course was an emulsion type: Water is mixed with the aggregate and then an emulsion type of oil is mixed into the course.

The new surfacing is made up of a 1½-in. base course and a 1½-in. finish course. The overlay varies in thickness from 7 in. to 1 in., with an average of 3½ in. The completed runway was sealed with emulsion and sand.

The paving job was completed in only four months, which, the constructors report, is one of the reasons why asphalt was used.

Turkey Will Build Base For U.S.-Supplied IRBMs

The U.S. has negotiated for the construction of a base for intermediate range ballistic missiles in Turkey. This will be the third IRBM base in the Western defense system.

The agreement calls for the Turkish government to provide the site and the U.S. to furnish the 1,500-mile range missiles and ground support equipment.

From a site in Turkey, IRBMs fitted with nuclear warheads could be directed to any point in the European part of the Soviet Union and to most of central Asia.

The base probably will be built under the same conditions that govern construction of launching facilities for Thor IRBMs in England. Total construction cost for four squadrons of 15 Thors each in Great Britain is $90 million (ENR Feb. 27, 1958, p. 19). England is doing the brick-and-mortar work at a cost of $28 million. A base for Jupiter IRBMs is under construction in Italy.

Whether Turkey will get Thor missiles, developed by the Air Force, or the Army-developed Jupiter IRBMs, has not yet been announced. There are no IRBM bases in the United States, because of their short range.

Air Force Plans to Build Two Underground Centers

The Air Force will build underground SAGE installations valued at some $15 million each near Stewart Air Force Base, N. Y., and Atlanta.

Seven more SAGE installations are authorized, but sites have not yet been selected for them.

SAGE (Semi-Automatic Ground Environment System) is a network of electronic stations that are designed to warn of the approach of enemy aircraft. They contain elaborate radar equipment and electronic computers (ENR April 23, p. 25).

In Baseball

NYC orders stadium study; Dodgers' park in new snag

New York City, which is angling for another baseball club to replace the departed Dodgers and Giants, began planning a $15-million stadium last week, but in Los Angeles, home of the world's champion Dodgers, plans for a new ball park bumped into trouble.

New York's Board of Estimate approved $170,000 for preliminary engineering plans for a stadium in Flushing Meadows Park, Queens, on the site of the 1939 World's Fair.

Praeger-Kavanagh-Waterbury, New York consultants, will draw up plans and specifications for a 55,000-seat stadium that latter could be increased to a capacity of 80,000. The firm will also prepare cost estimates on a movable dome that could convert the plant into an all-weather stadium.

New York expects to have a standard bearer in the Continental League, a third major baseball circuit now being organized.

In Los Angeles, the Dodgers' plans for rezoning 192 acres in Chavez Ravine has riled the City Council. A 55,000-seat, four-tier stadium would occupy less than 20 acres. But the Dodgers suggest ringing the ball park with concentric rows of novelty and souvenir stands, restaurants, an auto service center and 83 acres of parking space.

The Dodgers' grandiose plans are now worrying downtown business interests, who fear Chavez Ravine may be turned into a new center for the metropolitan area.

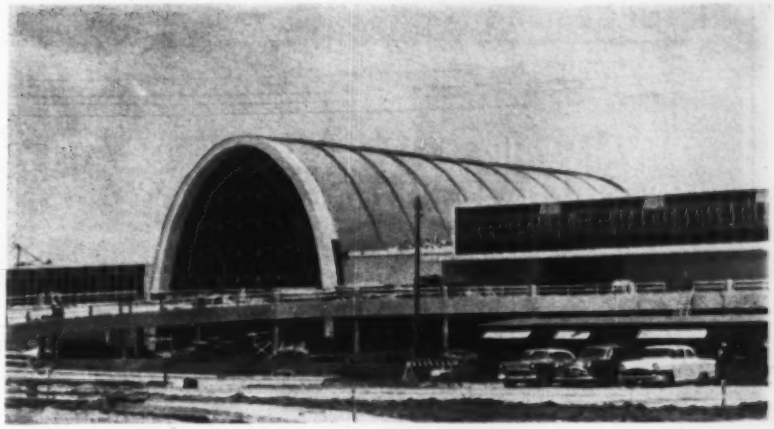
Charles S. Whitney, Partner Ammann & Whitney, Dead

Charles S. Whitney, 66, prominent member of Ammann & Whitney, New York City consulting engineers, died last week.

Mr. Whitney is noted for his work on reinforced concrete arches and thin-shelled concrete structures. Among his most notable achievements are the designs for the Hell Gate arch, with Gustav Lindenthal, and the Bronx, N. Y., viaduct.

Mr. Whitney entered private consulting practice in 1924 with the Milwaukee firm of Hool, Johnson & Whitney. He became affiliated with Ammann & Whitney in 1946 and was responsible for the planning and construction of numerous bridges, viaducts, airport facilities and highways throughout the U. S. and Europe.

With George Hool he wrote the "Concrete Designer's Manual" and is also the author of "Design of Symmetrical Concrete Arches."



New Airport Has Its Troubles

Adverse weather, short finances and labor trouble are plaguing contractors working on the $18.3-million capital improvements program at New Orleans' Moisant International Airport.

The city will dedicate the $7.5-million terminal building next month, but hopes of inaugurating jet service then are waning.

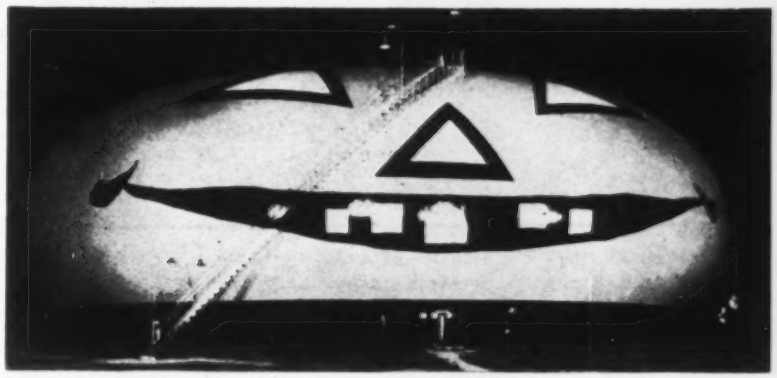
Heavy rains in August delayed laying 6 ft of river sand surcharge over the projected extension of the present east-west runway. Allowing for a 70-day settlement period, the Aviation Board says, the 9,313-ft jet runway cannot possibly be ready for use until early December.

The domed terminal building itself will go into service later than scheduled. When construction began the J. A. Jones Construction Co., Charlotte, N. C., estimated the building would be completed in 360 working days. The work began in January, 1957. Thirteen months later, in February, 1958, it was estimated that the building would be finished by February, 1959. Later, another estimate set the completion date for August 15. Still another estimate set the date for October 1. Now the date is November 12. The Aviation Board says all but the landscaping work will be completed by then.

The latest delay is blamed on a strike of electricians. Other delays were blamed on the city's failure to provide sufficient airport funds and on adverse weather.

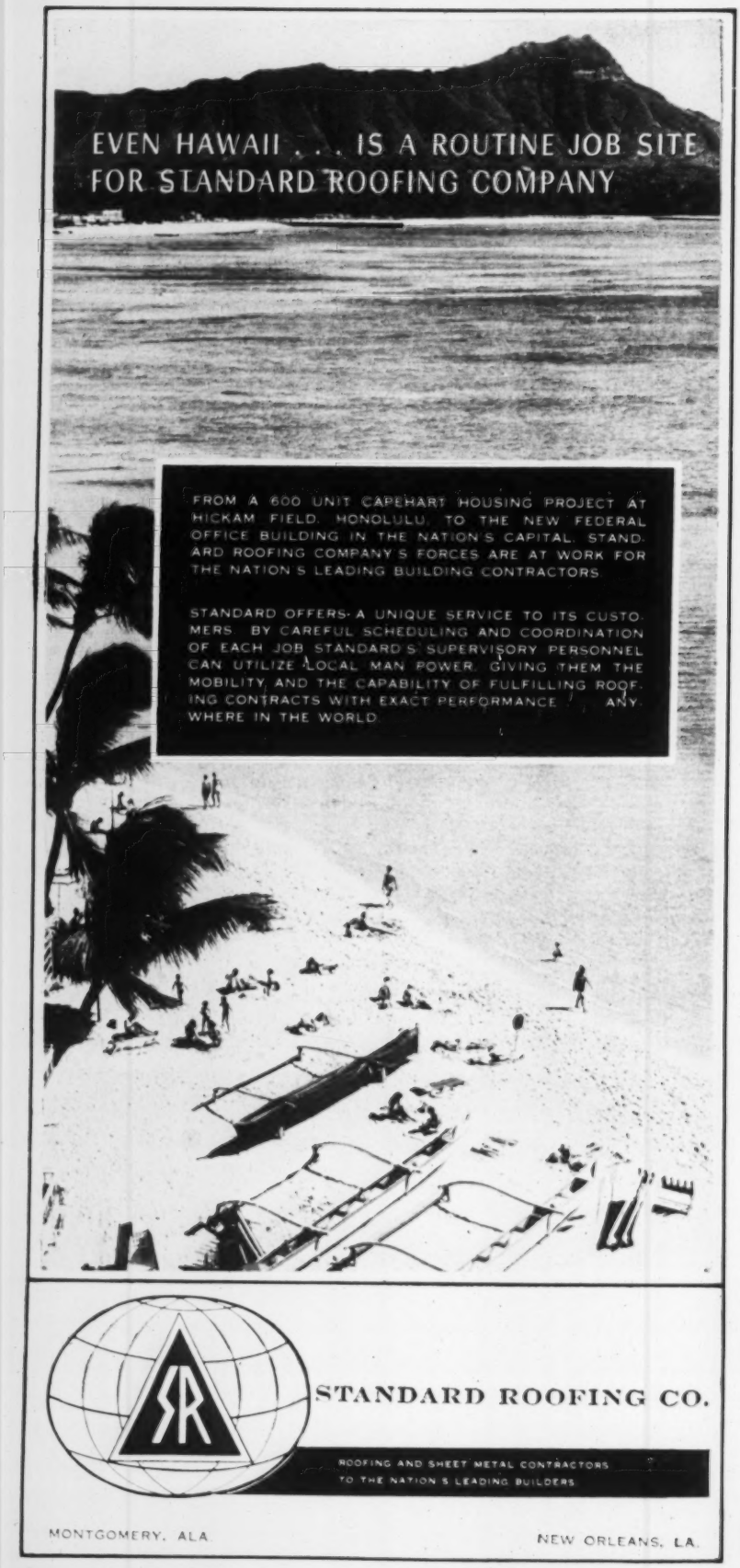
The new terminal building is dominated by a 220,000-sq-ft, two-story, domed main lobby with arched concrete beams and a glassed front wall. This section of the building will house customs offices, post office, kitchen and incoming baggage facilities on the ground floor. The second floor will house the main passenger lobby, ticket counters and a restaurant.

Flanking the main structure are two three-story wings housing offices. From each of the wings, the terminal's west and north piers extend to enclose the airport's parking ramp.



They Won't Put a Candle in This Jack-o'-Lantern . . .

. . . Because inside is 80,000 gallons of natural gas—the result might be a bit too festive, even for Halloween. But crews at Union Oil Company's refinery had enough holiday spirit to paint the traditional face on the 50-ft-high, pumpkin-like tank.


EVEN HAWAII . . . IS A ROUTINE JOB SITE
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Around the World . . .

• **Water plan for Cuba**—Fidel Castro's National Development Commission has hired the Kuljian Corp. of Philadelphia to study development of four rivers in Guantanamo Valley for power, irrigation and municipal water supply.

• **Forty Fort slips**—Water mains broke, streets cracked, a year-old, $300,000 school dropped about 8 in. and two homes had to be evacuated after an earth settlement in Forty Fort, Pa., a coal mining area. The settlement is one of a series that have occurred over the past several years.

• **Dresden goes critical**—Commonwealth Edison's nuclear power station, 50 miles from Chicago, achieved its first chain reaction last week with about 6% of the plant's uranium fuel elements in the core. It looks like the $45-million, 180,000-kw facility will be in full operation by mid-1960, six months ahead of schedule.

• **New expressway**—Johannesburg, South Africa, will build a 20-mile, $80-million expressway. The route will have double-deck sections where a divided highway would mean removal of major government buildings. Engineering executives of Johannesburg's city government are inspecting expressways in the U. S. and Europe.

• **Call for construction**—Southwestern Bell Telephone Co. will spend $9 million tripling the size of its Dallas headquarters building. Eight stories will be added to the present 13-story building; a 21-story addition will be built beside it; and two levels will be added below ground. Work should be finished in 1963.

• **Rapid power**—The first commercial power generated at Priest Rapids Dam flashed over the lines last week, three years and 34 days after the start of construction—and 16 months ahead of schedule. The $98-million hydroelectric facility is now 85% complete.

• **Italians design Brazil hydro**—An Italian engineering combine reports it will design two hydroelectric projects for the Brazilian state of Rio Grande do Sul. One will be a 220,000-kw plant on the Rio Passo Fundo, the other a 150,000-kw plant on the Rio das Antas. The designing group, called Electroconsult, comprises Montecatini Co., Milan, Fiat Co., Turin; and Sade Co., Venice.

HOW TO HANDLE WET JOBS

#51 of a series

Project: Chrystie St. subway tunnel, New York City
General Contractor: Cayuga Foundation Corp., New York City
Pumping Contractor: Wellpoint Dewatering Corp., New York City

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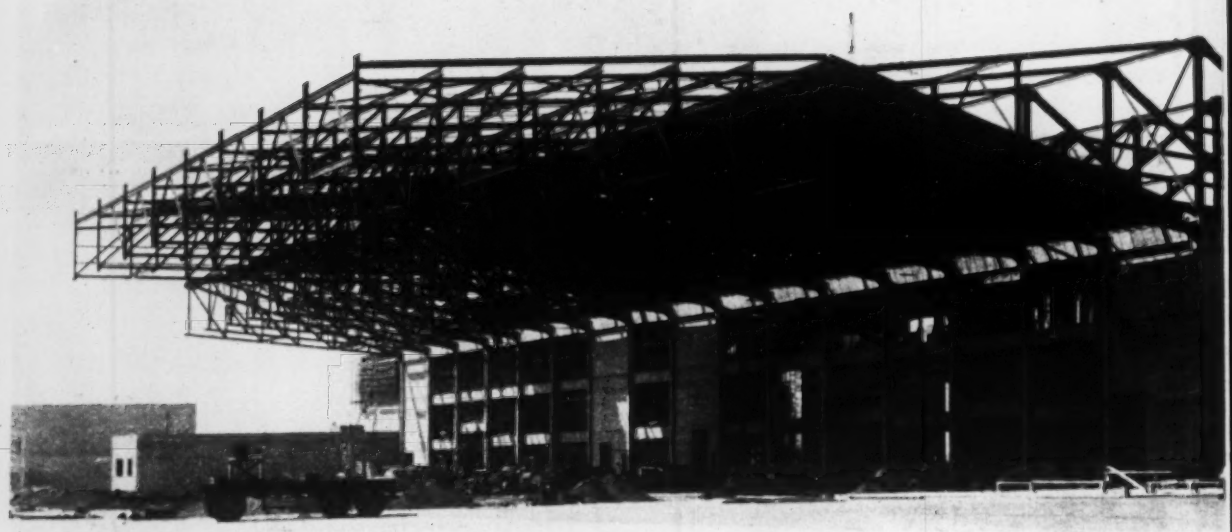
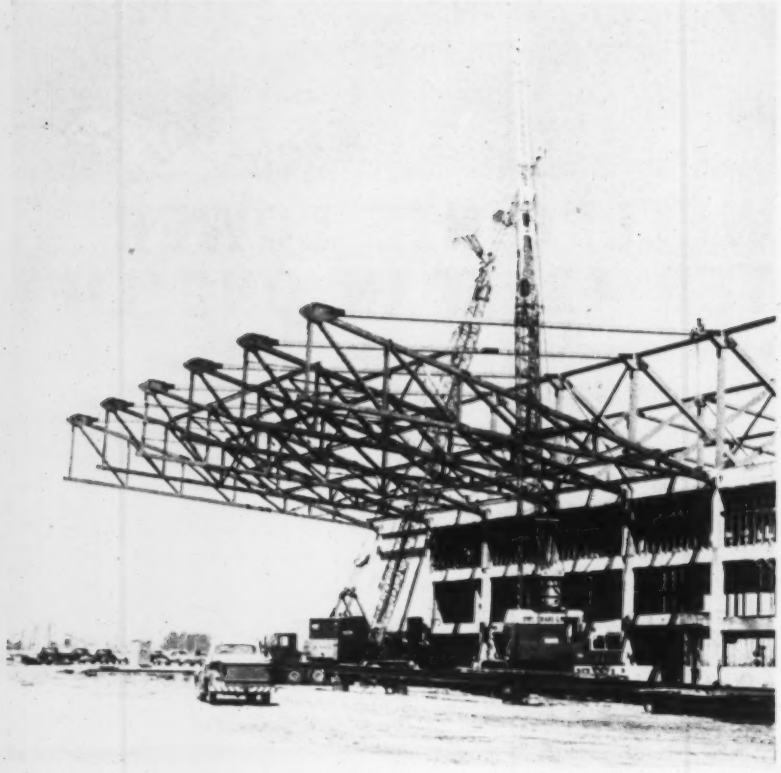
25th YEAR



Roof trusses in a new TWA hangar at Los Angeles are suspended from trussed tiebacks and columns

Tandem-Truss Hangar Roof Has



For balance, half of each truss was erected on each side of the building.

A maintenance hangar built for Trans World Airlines at Los Angeles International Airport has an unusually light, long-span roof. The framing of the double-cantilever structure consists of welded steel trusses in tandem; the roof is long-span steel decking.

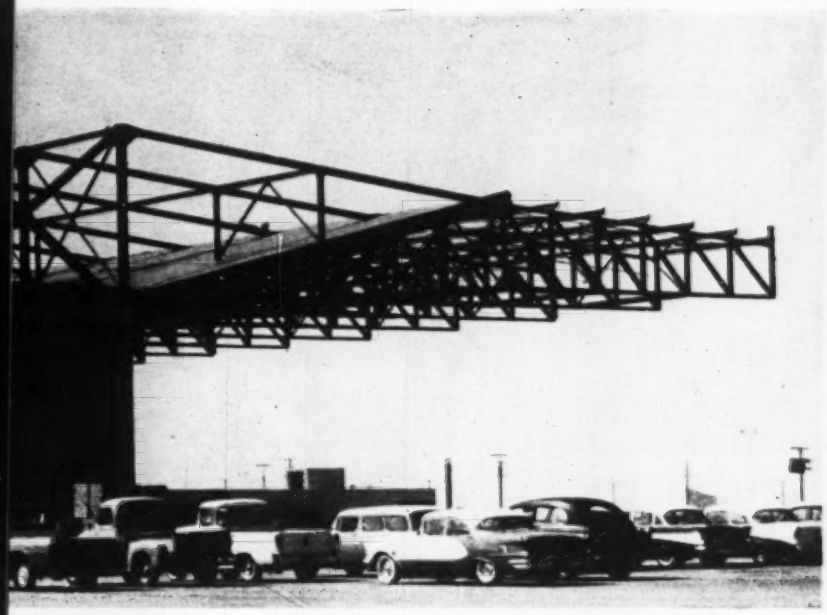
The trusses cantilever 155 ft on one side of the building and 135 ft on the other.

Each truss is actually a pair of trusses. One member of the pair extends the full length of the overhang; the other member projects above it and provides support for it about halfway out. Two rows of columns along the outer walls of a center core support the trusses.

The structure was designed to provide an efficient service and maintenance facility for Trans World Airlines' present fleet of conventional aircraft, as well as the huge jet airliners scheduled to be in operation in the near future.

The maintenance hangar is about 330 ft wide and 490 ft long. The two-story center section is 40x480 ft and contains shops, offices, training facilities and a basement for parts storage. The columns along its exterior, which support the double-cantilever roof, have structural steel cores, but the rest of the

By B. E. Sharp, *chief production engineer, of Holmes & Narver, Inc., Los Angeles consulting engineers who designed the hangar.*



that extend 30 ft above the concrete center core.

Long Overhangs

center section is reinforced concrete. Additional space for administrative offices, a communications center and employees dining facilities is provided in a three-story reinforced concrete annex at one end of the building.

• **Studies favored dual trusses**—Before the roof design was selected, preliminary designs were made for various types of cantilever construction. These studies included such types as cable-suspended prestressed concrete girders, steel plate girders with precast, prestressed concrete roof decks, and variations of the concrete folded-plate system used TWA in some of its eastern facilities.

Comparisons showed that the welded steel trusses with metal roof decking offer advantages in cost, weight, availability of material and erection time not found in the other schemes investigated.

• **Lightweight hung roof**—The double-cantilever roof is supported on 17 lines of trusses spaced 30 ft c-c. The trusses are suspended from 85-ft-high exposed structural steel columns that extend 30 ft above the roof of the center section.

The suspension members are rolled steel sections. They were designed to function also as struts, to assist in resisting uplift forces on the cantilevers from wind or earthquake. This rigidity permits a lightweight roof to be used, since weight is not relied on to resist uplift.

The columns were required to be encased in concrete fireproofing. Advantage was taken of this concrete for structural purposes. Reinforcing steel was added, and the columns were designed as composite sections to resist vertical loads and bending moments induced by the concrete floor and roof girders of the center section. In addition, the columns were provided with steel brackets to carry the concrete frame and develop continuity.

Pin connections were used between the trusses and columns. A 14 WF 219 steel strut was placed between the pin connections on opposite sides of the center section at roof level, to resist horizontal thrusts of about 500 tons. The concrete roof girders of the center section are not relied on to take any of this thrust because of possible difficulty of concreting around steel struts and the unquestionable degree of bond.

Lateral forces on the structure due to wind and earthquake are expected to be transferred by the concrete floor and roof systems to heavy concrete shear walls in the center section. The shear walls are arranged both longitudinally and transversely. The longitudinal walls are incorporated at intervals in the exterior walls. The transverse walls are spaced about 90 ft c-c. An effort was made to balance relative deflections of the shear walls to equalize distortion throughout the length of the center core, taking into account unsymmetrically located mezzanines.

• **Welding saves steel**—The steel trusses and columns originally were designed for shop riveting and field bolting with high-strength bolts. But an alternate design, called for shop welding and field bolting. It reduced the total steel tonnage about 5% and was adopted.

The center section and the annex rest on 20-in.-dia drilled and cast-in-place reinforced concrete piles, each with a vertical-load capacity of about 85 tons. Length averages 35 ft.

Before the roof trusses were erected, the framing and shear walls of the center section were completed.

Each truss was fabricated in two sections. The outer sections of both the 135- and 155-ft cantilevers had the same length and configuration—70-ft length, 15-ft height—to permit maximum reuse of welding jigs. But the inner sections differed in length by 20 ft.

Welds were given the normal visual inspection. In addition, critical joints were radiographed. At least 10% of all the welded joints, selected at random, also were radiographed.

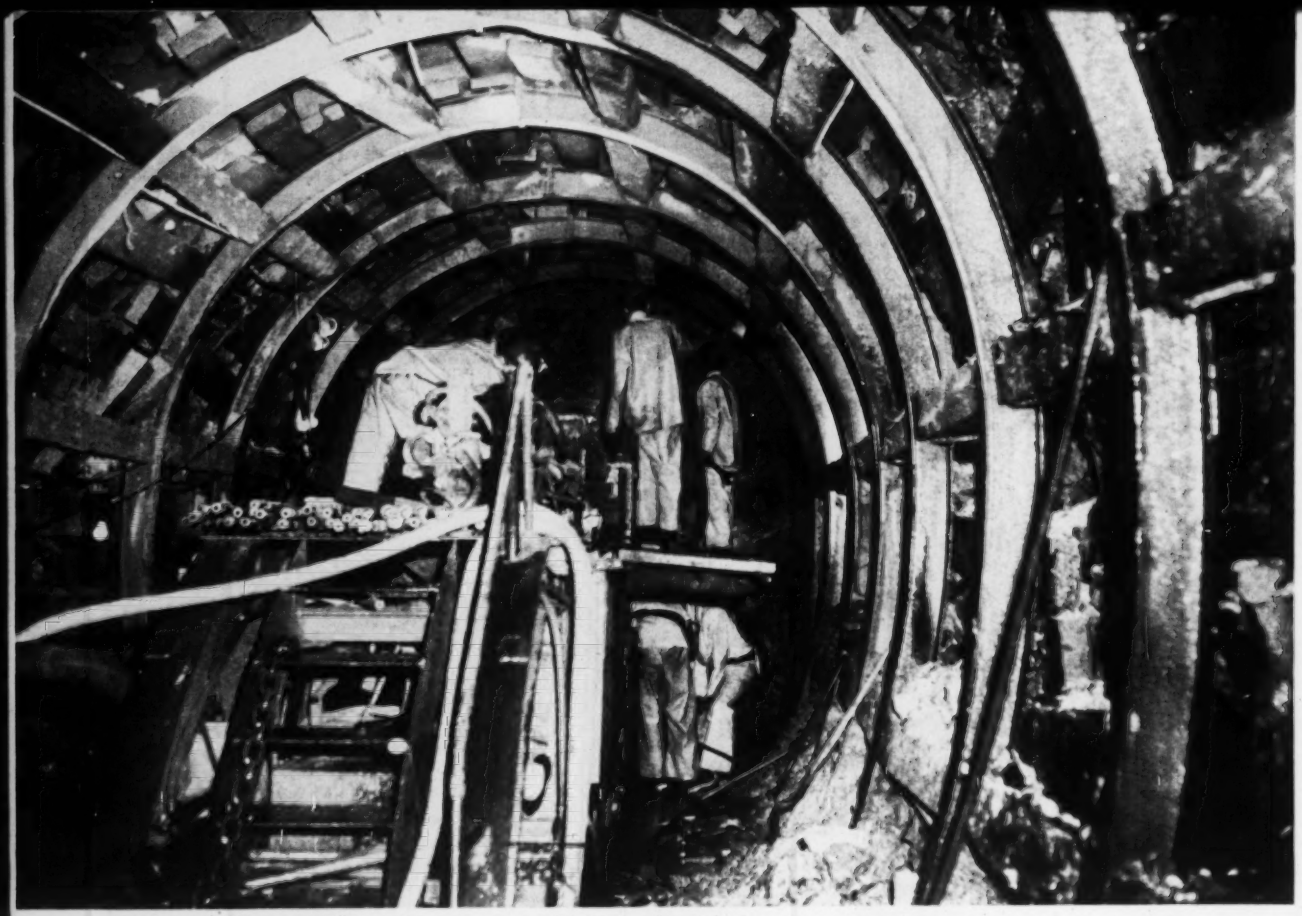
The trusses for only half the length of the double-cantilever roof were erected first. Particular care was taken to maintain balance of trusses on either side of the center section during erection. The inner section of each line of trusses was erected first, before the next line was positioned. After the inner sections for half the building were erected, the outer sections were set in place in the same sequence.

The same procedure was followed for the second half of the roof framing. The 34 trusses, together with purlins and bracing totaling 1,455 tons, were erected in six weeks.

Doors were installed only along the end of the 155-ft overhang. These power-operated doors have sloping hinged canopies at the top, the base of the doors being 10 ft beyond the edge of the roof. The hinged door sections can rotate to compensate for vertical deflections of the truss ends, which may vary as much as 15 in.

No doors are planned at present for the other side of the hangar. However, steel-framed removable panels with tail slots have been provided to reduce the open area and still allow large jet planes to be completely enclosed.

The hangar was designed by Holmes & Narver, Inc., consulting engineers, Los Angeles. Diversified Builders, Inc., Paramount, Calif., was the general contractor. Pacific Iron & Steel Corp., San Marino, Calif., fabricated and erected the steel.



Miners drill rock face from a two-deck jumbo in . . .

Tunneling 23 Miles Through Rockies

Piercing the Continental Divide with a 23-mile tunnel to bring western slope water to Denver takes plenty of powder, perseverance and tunnel-driving know-how. But a six-company combine of hard-rock contractors expects to hole through this winter and complete the job in a couple of more years. About 2.5 miles of tunnel remain to be driven.

The 10-ft 3-in. ID tunnel is designed to carry 788 cfs. Named the Harold D. Roberts Tunnel, it will divert water from Dillon Dam—yet to be built on the west slope's Blue River—to the eastern slope of the Divide.

The 23.3-mile tunnel begins near Dillon, Colo., and ends near Grant on the eastern slope. Water will flow 98 miles from the dam to Denver—23 miles in the tunnel, 50 miles in the North Fork of the South Platte River and other improved channels, and 25 miles through conduit.

To expedite the $50-million project, Roberts Tunnel is being mined at four headings: The east heading near Grant, the west heading near Dillon and two headings from a 916-ft-deep access shaft nine miles east of Dillon.

• Ten year program—This is a key project in the 10-year, $100-million construction program begun in 1956 to expand the Denver municipal water system. When completed early in 1962, it will make 150,000 acre-ft of additional raw water potentially available to the Denver metropolitan area.

When this increased supply is combined with that now obtained from the South Platte, Fraser and Williams Fork Rivers, it will meet the needs of 1,320,000 people, the population expected by the year 2000. This is nearly double the population now being served.

To reach this amount, however, stage construction of additional storage capacity must be supplied from time to time during the last 35 years of this century.

• Faulted formation—For the first 8.5 miles the tunnel follows the Snake River valley at depths of 600 to 800 ft beneath the surface. Much of this distance is in Pierre shale, some of which is fractured with water bearing seams and numerous minor faults.

In addition to the faulted Pierre shale, several other complex geological formations are in the path of the advancing tunnel headings. They include coarse-grained granite, some of which is highly mineralized. There are also pegmatites, schists, quartzites, gneiss and granite with frequent mud slips and seams.

• Mining sequence—It takes about 60 minutes to drill and 20 minutes to load the 42 to 52 holes per heading. These 7-ft holes are loaded directly from the two-platform jumbo. About 20 minutes are needed to clear the area of smoke and fumes following a blast, then about 70 minutes to muck out and 30 minutes to install tunnel braces and timbering.

Tunneling at the east portal has averaged 49 ft per day since it began in February, 1957. Best day's work has been 119 ft of tunnel. This was accomplished by two tunneling gangs working each way from the access shaft. Tunneling operations at all four headings are on a 6-day 24-hour basis.

(Continued on p. 35)

By J. Roland Carr, *associate editor, who rode 40 miles on narrow gage tunnel track to see Roberts-Tunnel's headings.*

Trimline building being erected for John H. Dulany & Son, Inc., Fruitland, Maryland.

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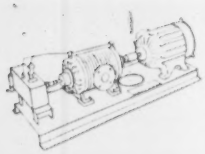
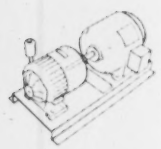
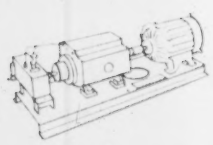


Air Cooled Units



Fan Cooled Units



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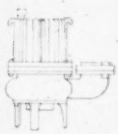

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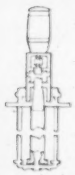

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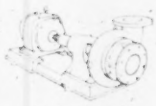
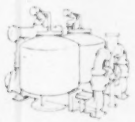


Series 6000



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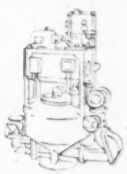

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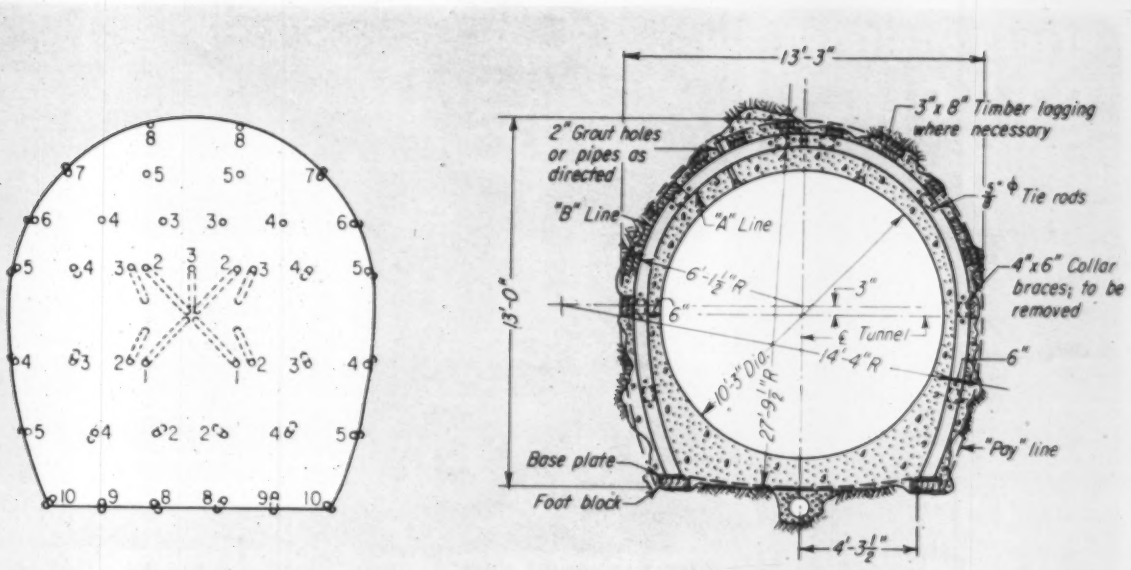


HORSESHOE-SHAPED BORE has pay line dimensions 13 ft 3 in. horizontally and 13 ft vertically. Holes 1, 2 and 3 in blast pattern knock out central wedges. Others slab into it. Rounds advance face about 7 ft each.

About three quarters of the tunnel has required steel bracing. The remainder is in rock of such good quality that no bracing is required. In some short stretches, however, roof bolting has been needed.

Steel bracing is 6-in. 20-lb structural beams, normally spaced 5 ft c-c. In poor material, however, this spacing is reduced to 2.5 ft, or even less. In extreme cases of poor material and heavy pressure, 8-in. structural beams are used.

• **High-pressure ventilation**—Ventilation is a serious problem, especially in the nine-mile length of tunnel on the eastern slope. Two big high-pressure fans are used. Each is capable of moving 10,000 cu ft of air per minute. They force the air up to the heading through a 26-in.-dia pipe, or suck powder fumes out following a round of blasting.

High-pressure air for operating drilling equipment is delivered at the headings in an 8-in. pipe. Water for operating the equipment comes in a 4-in. pipe. Electric power flows through a heavily insulated cable, at 4,160 volts and is reduced by transformer to 220 or 110 v.

The horseshoe-shaped tunnel has maximum payline dimensions of 13 ft 3 in. horizontal and 12 ft 6 in. vertical. Extending along its center line is a 24-in. narrow-gage track.

Near each heading the miners use the so-called "California" switch—a 350-ft length of double track, narrow gage rail, supported on the regular single track. It is moved forward every two days, sliding along on rollers on the single track, and pulled by one of the muck train electric motors.

The two-platform drill jumbos at each heading mount four drills. A fifth drill is kept as a spare and for drilling roof bolts and miscellaneous work.

Each round is loaded with 150 to 200 pounds of 45% strength powder. Blasting caps are standard delays, No. 1 through 10. The 1, 2 and 3 holes (see blast pattern) blow out a central plug, then the others "slab" into it.

Mucking is performed by the so-called overshot loader. One 7-ft round produces about 80 cu yd of muck, which means 16 carloads.

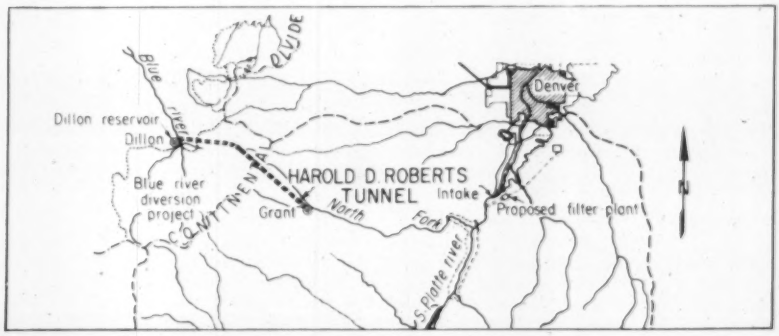
Drilling is usually performed with 3½-in. No. 35 drifters using 1⅝-in. bits with carbide tungsten inserts. The bits are normally sharpened every three rounds. Each crew makes from one and a half to three rounds per eight-hour work shift, depending on the material mined. It takes about 45 minutes for the muck train to move from heading to portal over the nine-mile distance at the east heading.

• **Ventilation pipe**—One of the big problems in the tunnel is handling the ventilation pipe. This 26-in. metal pipe is fabricated in 40-ft lengths. Each length weighs 1,080 lb. Two lengths are brought in at a time. One is erected in place while the other is stored a short distance from the heading until needed.

The contractors worked out an unusual method of handling and installing these heavy sections of ventilation line. To erect one near the top of the tunnel, they use two hydraulic-jack jumbos mounted on flat cars on the tunnel track.

Each jack cradles the pipe, lifts it vertically, moves it sideways as needed to match the last length of pipe installed, and holds it in position until the pipe is anchored to the tunnel bracing.

• **Major quantities**—Some idea of the size of the job can be gained from quantities. For the entire contract, they include: tunnel excavation, 598,000 cu



RUNNING UNDER THE CONTINENTAL DIVIDE, the tunnel and allied works divert water from the west slope of the Rockies to the east slope.

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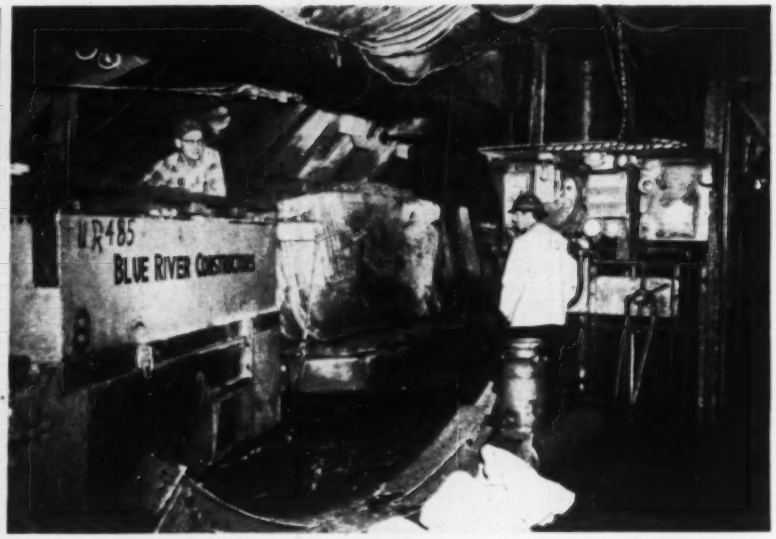


MUCK CAR DUMPS A LOAD of 5 cu yd at bottom of work shaft to be hoisted 916 ft to ground level. By job's end, excavation will total 598,000 cu yd.

yd; steel tunnel supports, 8,000 tons; roof bolting supports, 40 tons; feeler holes and high-pressure grout holes, 220,000 lin ft; grout, 5,000 cu yd; gunite lining, 1,000 cu yd; portland cement, 376,000 bbl; reinforcing steel, 125 tons; concrete lining in tunnel, 264,000 cu yd. Total length of the tunnel is 122,900 ft.

• **Tunnel lining**—Concrete lining will start at about the midpoint of the tunnel and progress each way. Sand, gravel and cement will be dry batched at the east and west portals and taken into the tunnel on the narrow-gage track. The concrete will be mixed near the point of use and pumped a short distance into the forms.

Materials will be transported in special aggregate cars replacing the muck cars on their undercarriages. Each aggregate car will contain materials for three 1¼-cu-yd batches of concrete.

A system of three conveyors will be used to handle the materials at the concrete-lining operations. As an aggregate car reaches the end of its run, it will be bottom-dumped onto a conveyor, which will discharge into a hopper. A second conveyor will elevate the material into a concrete mixer, while a third conveyor will move the mixed concrete to the top of the concrete pump.

• **Aggregate production**—A total of 580,000 cu yd of gravel and 200,000 cu yd of sand are being stockpiled for lining the tunnel. Of this amount, 305,000 tons of gravel will be stockpiled near the west portal above Dillon, and 275,000 tons near the east portal, above Grant. About 100,000 tons of sand will be stockpiled at each location.

The same equipment will be used to produce both aggregate piles. The 200 ton-per-hr plant, driven by a 400-kw electric plant, operates on a three-shift basis. Total washwater capacity is 1,800 gpm.

Here's how the setup works:

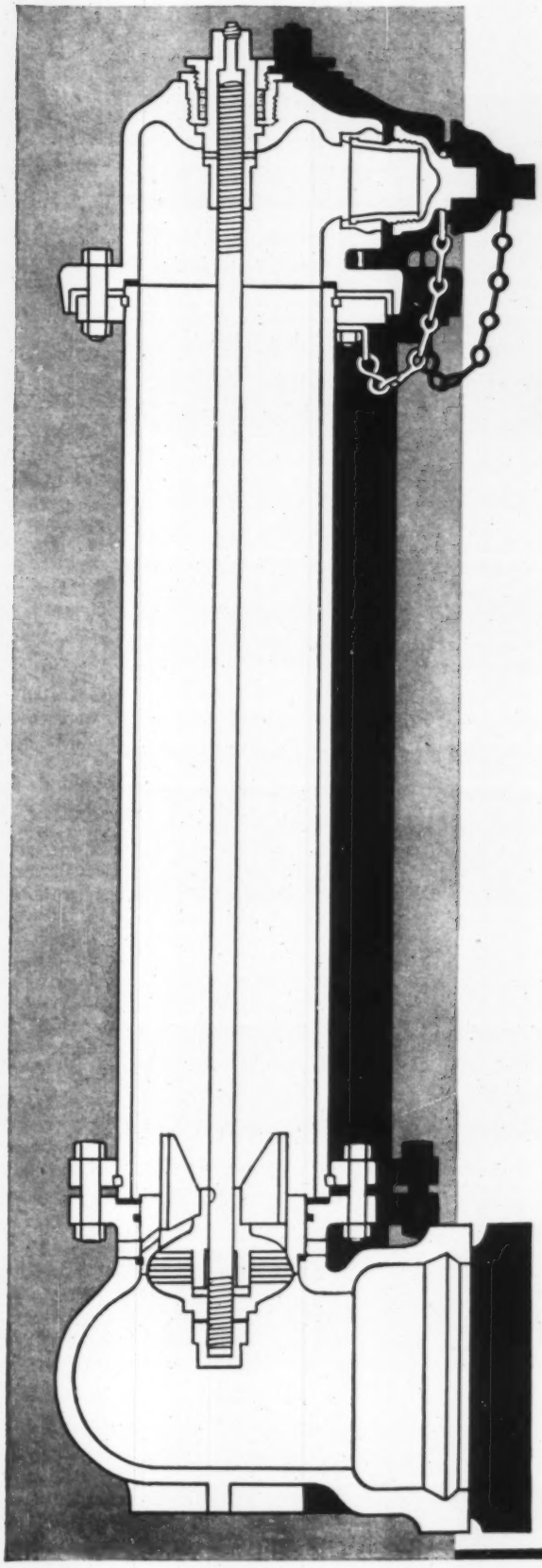
Material from a nearby gravel pit is loaded by a 1½-cu-yd shovel into trucks and hauled to a scalper-feeder, equipped with a 4½-in. bar opening. Material above 4½ in. is wasted. The remainder starts through the screening, crushing and washing plant.

Material smaller than 1¾ in. goes directly through the plant. Material from 1¾ to 4½ in. is crushed by a pair of 40x20-in. roll crushers and a 3-ft standard cone crusher. As the material moves through the plant, it is graded to required sizes by vibrating screens, which produce material from 1½ in. to ¾ in., and from ¾ in. to No. 4 sieve.

To get the proper gradation of sand, it is screened and washed and separated into nine sizes, then blended as required.

• **Tunnel temperatures**—Temperatures in the tunnel vary considerably, because of the great differences in depth of coverage above the tunnel. Coverage ranges up to 4,475 ft. Temperatures range from an average of 59F at the headings on the west side of the work shaft to 80F at the headings on the east side.

• **A tough water problem**—One of the toughest problems in underground water was encountered last March at the heading being mined from the access shaft toward Dillon. So much water



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. . . A hard leak to plug

was coming in under such high pressure through feeler holes that all mining operations had to be stopped for seven weeks.

Inflow was 700 gpm under a pressure of about 225 psi–Snake River was only about 600 ft above the tunnel and about 500 ft away from it horizontally.

Tremendous quantities of grout were pumped into the several feeler holes that had been drilled into the heading. But, although pumped under a pressure of 1,500 psi, the grout could not check the inflow.

Finally, diamond drills were brought in and four holes were drilled 200 ft into the heading. Grout was pumped into these holes until inflow of water reduced enough to permit operations to resume.

Even then it was necessary to use the "pilot-bore-and-feeler-hole" method of mining the tunnel a few feet at a time.

• **Construction timetable**—The Denver Water Board engineers anticipates holing through under the western slope by the end of this year and under the eastern slope early next year. Construction of the invert portion of the concrete lining west of the work shaft will start next April and should be finished by July.

East of the shaft, this operation will be started in June and finished by September.

Placing the arch portion of the concrete liner on the west side will start next August and be finished by April, 1961. Arch concrete for the eastern portion of the tunnel is scheduled to start next September and be finished by June, 1961. Contract completion date for the entire tunnel is January 7, 1962.

Blue River Constructors, which holds a $40.4-million contract for the project, is a joint venture of six firms: Mid-Valley Utility Constructors, Inc.; S. A. Healy Co.; Chas. H. Tompkins Co.; J. A. Jones Construction Co.; A. S. Horner Construction Co.; and Colorado Constructors, Inc.

Ted Adams is project manager for the contractors, and Dave Morse is his assistant. Superintendents are R. J. Silva, Dave Pearson, Emery Gardner.

E. L. Mosley is project engineer for the Denver Board of Water Commissioners. R. B. McRae is chief engineer and R. S. Milar is manager-secretary.

Tipton and Kalmbach, Inc., consulting engineers, Denver, are in charge of all engineering and supervision of the contract work, with H. J. Dickinson as construction engineer. Luke Lindsay and Frank Vinyard are resident engineers at the west and east portals, respectively.

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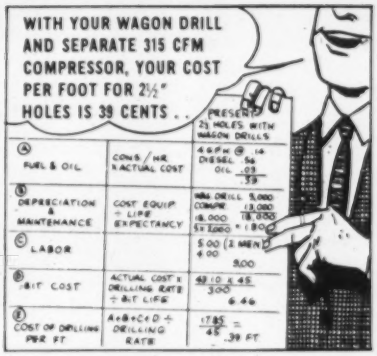
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B DEPRECIATION & MAINTENANCE — COST EQUIP ÷ LIFE EXPECTANCY — WGN DRILL 5,000 COMPR 13,000 = 18,000 ÷ 5×2,000 = 1.80
C LABOR — 5.00 (2 MEN) 4.00 = 9.00
D BIT COST — ACTUAL COST × DRILLING RATE ÷ BIT LIFE — 42.10 × 45 ÷ 300 = 6.46
E COST OF DRILLING PER FT. — A+B+C+D ÷ DRILLING RATE — 17.85 ÷ 45 = .39 FT.

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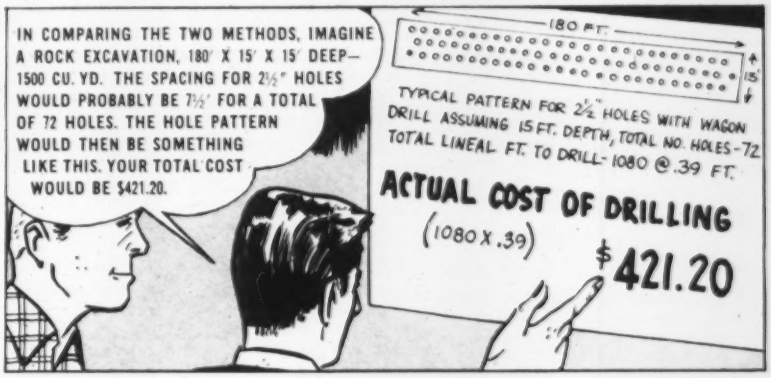
A FUEL & OIL	CONS/HR × ACTUAL COST	4 GPH @ 14 DIESEL .56, OIL .03 = .59	4 GPH @ .22 GAS .88, OIL .01 = .89
B DEPRECIATION & MAINTENANCE	COST EQUIP ÷ LIFE EXPECTANCY	WGN DRILL 5,000 COMPR 13,000 = 18,000 ÷ 5×2,000 = 1.80	ROTADRILL 17,000 ROTATOOL 2,000 = 19,000 ÷ 5×2,000 = 1.90
C LABOR		5.00 (2 MEN) 4.00 = 9.00	1 MAN 4.00
D BIT COST	ACTUAL COST × DRILLING RATE ÷ BIT LIFE	42.10 × 45 ÷ 300 = 6.46	31.5 × 25 ÷ 400 = 1.97
E COST OF DRILLING PER FT.	A+B+C+D ÷ DRILLING RATE	17.85 ÷ 45 = .39 FT.	8.76 ÷ 25 = .35 FT.


IN COMPARING THE TWO METHODS, IMAGINE A ROCK EXCAVATION, 180' X 15' X 15' DEEP—1500 CU. YD. THE SPACING FOR 2½" HOLES WOULD PROBABLY BE 7½' FOR A TOTAL OF 72 HOLES. THE HOLE PATTERN WOULD THEN BE SOMETHING LIKE THIS. YOUR TOTAL COST WOULD BE $421.20.
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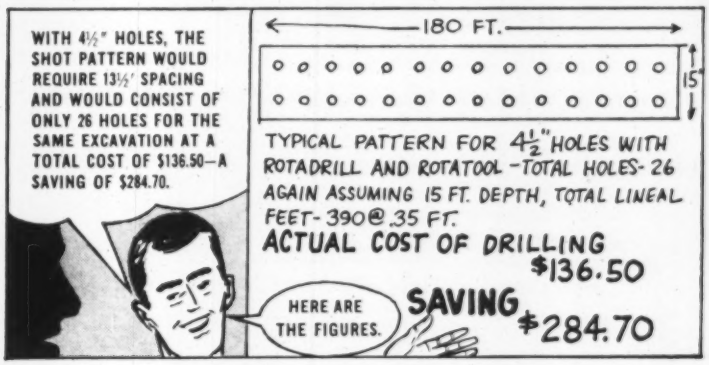
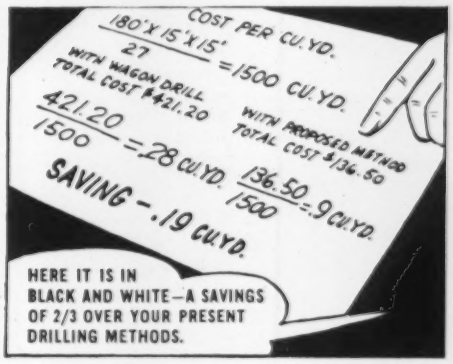
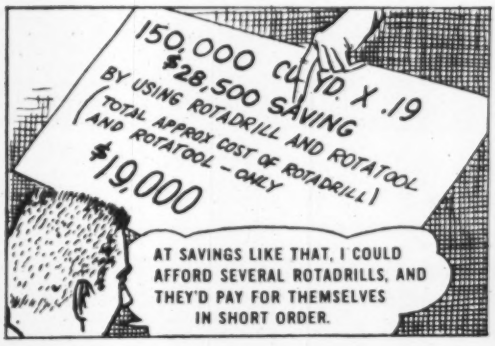
(1080 X .39)
$421.20

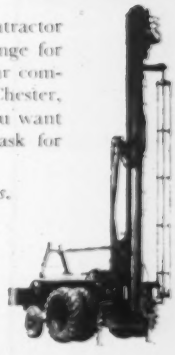

WITH 4½" HOLES, THE SHOT PATTERN WOULD REQUIRE 13½' SPACING AND WOULD CONSIST OF ONLY 26 HOLES FOR THE SAME EXCAVATION AT A TOTAL COST OF $136.50—A SAVING OF $284.70.
180 FT.
15'
TYPICAL PATTERN FOR 4½" HOLES WITH ROTADRILL AND ROTATOOL -TOTAL HOLES- 26 AGAIN ASSUMING 15 FT. DEPTH, TOTAL LINEAL FEET- 390 @ .35 FT.
ACTUAL COST OF DRILLING
$136.50
HERE ARE THE FIGURES.
SAVING $284.70


COST PER CU. YD.
180' X 15' X 15' / 27 = 1500 CU. YD.
WITH WAGON DRILL TOTAL COST $421.20
421.20 / 1500 = .28 CU. YD.
WITH PROPOSED METHOD TOTAL COST $136.50
136.50 / 1500 = .9 CU. YD.
SAVING - .19 CU. YD.
HERE IT IS IN BLACK AND WHITE—A SAVINGS OF 2/3 OVER YOUR PRESENT DRILLING METHODS.


150,000 CU. YD. X .19
$28,500 SAVING
BY USING ROTADRILL AND ROTATOOL
(TOTAL APPROX COST OF ROTADRILL AND ROTATOOL - ONLY
$19,000
AT SAVINGS LIKE THAT, I COULD AFFORD SEVERAL ROTADRILLS, AND THEY'D PAY FOR THEMSELVES IN SHORT ORDER.

Want to see more? Let us show you the Pneumatractor Mounted Rotadrill in action! Act now to arrange for your own personal demonstration. Write on your company letterhead to SCHRAMM, INC., West Chester, Pa., and we'll set up a date with you. Or, if you want more information before your demonstration, ask for Bulletin DM58-4.

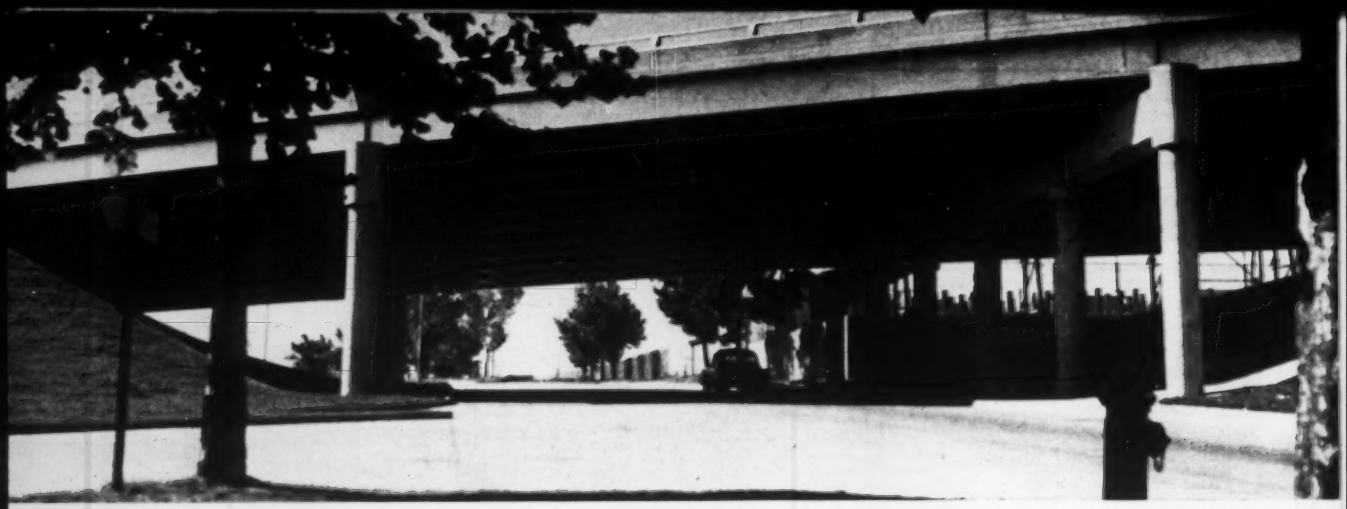
Your local Schramm dealer is listed in the Yellow Pages.



Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Ave. • West Chester, Pa.



This Mark Twain Expressway bridge has 3-span continuous girders 64'-76'-64'.

Steel is specified in 70% of bridge designs

This 4000' section of the new St. Louis freeway is a series of short-spans from 60' to 100' long. Cost of overpass: $6 million.

Major General Sverdrup (at right), President of Sverdrup & Parcel Engineering Co., discusses an Interstate Highway bridge with Mr. Brice Smith, Vice President of the firm. General Sverdrup was acting Chief Engineer to General MacArthur and later Commanding General of the Engineer Construction Command in the Southwest Pacific during World War II.

at Sverdrup & Parcel Engineering Company, St. Louis, Mo.

Detail of short spans on 6-lane overpass, St. Louis, Mo.

Major General L. J. Sverdrup is president of Sverdrup & Parcel—world famous for highway and bridge designs. He says that the advantages of steel in bridge construction are proven by experience which accounts for 70% of their bridge designs being specified in steel.

One of the firm's most recent short-span projects is the $6 million, 6-lane, 4,000 foot overpass which cuts through the heart of downtown St. Louis. According to General Sverdrup, they used steel beams because they couldn't afford the extra time, special equipment and additional manpower needed to do the job with other materials. It was estimated that downtown traffic would have been tied-up for three to four months if they hadn't gone to steel. By using steel, all they had to do was swing it into place, bolt, rivet, weld . . . and they were in business.

Sverdrup & Parcel feel safe in specifying structural steel because its stress and endurance factors are a part of their library of proven facts.

In addition to the St. Louis highway project, some of the firm's outstanding achievements include: eight bridges across the Mississippi; six bridges across the Los Angeles River; two across the Ohio River; and structures on the Interstate Highway System, such as the Mark Twain Expressway bridges, as shown.

Increased facilities Because of the vigorous, ever-expanding demand for steel, the steel industry has greatly expanded its facilities for the manufacture of structural shapes and plates. You can confidently design in steel—the material you know best—the material that offers the most—knowing that steel will be available.

USS is a registered trademark

USS

United States Steel Corporation—Pittsburgh
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Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

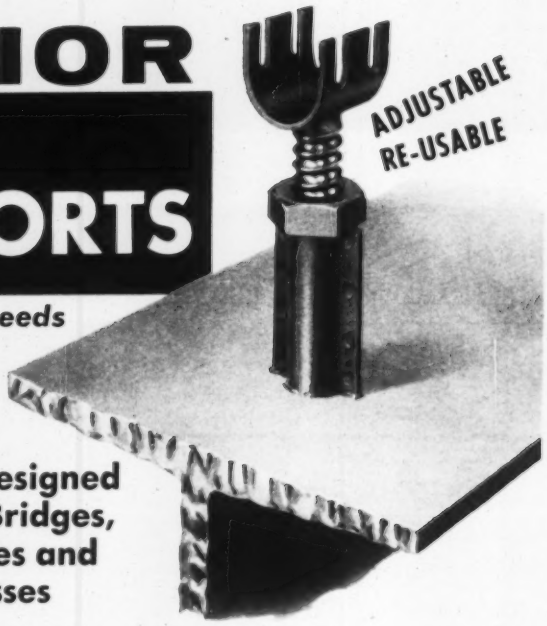
United States Steel

SUPERIOR

Heavy-Duty SCREED SUPPORTS

Pat. Applied For

For Use with 1¼" and 1½" I.D. Pipe Screeds and Vibratory Screeding Equipment



ADJUSTABLE SCREED HOLDER

Consists of a 1" threaded rod to which is welded a cradle to hold the pipe screed. This cradle is slotted as shown so that the arms may be bent over to secure the 1¼" or 1½" I.D. pipe screed. Threaded onto the rods is a half nut which provides the adjustment.

Especially Designed for Use on Bridges, Underpasses and Overpasses

These Screed Supports are designed to take the heavy loads imposed by traveling vibrating screeding equipment. The Bases for the screed holders are of two types: (1) The Metal Base for use on structural steel members; (2) the Chair-Type Base for use on a plywood deck.

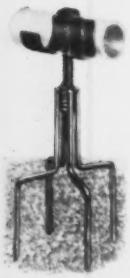
On Structural Steel: As shown above, the Metal Base is tack-welded to the top flange on approximately four foot centers. The Screed Holder is set into the base, and adjusted to height by turning the nut. The threads are fast, three to the inch, and of a contour type, non-clogging and easily cleaned.

On Wood or Plywood Decks: The Chair Base is set on the deck at approximately four foot centers. It is easily secured to the deck by nailing across the upturned legs. If desired, legs can be supplied of galvanized wire. The Chair Base with holder is shown below.

Adjustable Standard SUPERIOR SCREED CHAIRS

FOR FORMED SLABS 4½" AND GREATER

With re-usable screed holders using 1" I.D. pipe and rectangular bars for screeds.



FOR SLABS ON FILL

With re-usable screed holders using 1" I.D. pipe and rectangular bars for screeds.

PERFORMANCE

Superior's Heavy-Duty Adjustable Screed Supports have been used on turnpike structures and other projects. Results in the field indicate that this method of supporting screeds provides a simple answer to an otherwise expensive and complicated set up. *Write for Bulletin.*

HOLDER INSERTED IN CHAIR BASE

Only the inexpensive bases are left in the concrete. The Adjustable Holders are easily removed, together with the pipe screed, because the holders are set, not screwed into the base. The nut fully covers the base opening and prevents concrete from entering.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King Street, Franklin Park, Illinois

New York Office
39-01 Main St.
Flushing 54, N. Y.

Houston Office
4101 San Jacinto
Houston 4, Texas

Pacific Coast Plant
2100 Williams St.
San Leandro, Calif.

12 Shoes Pack 1,500 TPH

The Super-Roadpacker, described as the world's highest capacity vibratory compactor, cuts compacting time by 50 to 75% the manufacturer claims. It will pack down up to 1,500 tons of rock and sand screenings per hour, the maker adds.

Two 15-ft rows of vibrating shoes are set in tandem—one row of six shoes ahead of the front axle; a similar row behind the axle.

The shoes are hydraulically operated and controlled; they can be run in various combinations or all at once. Speeds up to 2,200 oscillations per minute are possible.

Each shoe is sealed against sand and dust and is designed to operate efficiently even if buried in loose sand. End shoes can be raised to reduce machine's working width.

The Super-Roadpacker is 26 ft 9 in. long, 9 ft 10½ in. wide and 10 ft 2 in. high. Maximum gross weight is 26,900 lb. Machine comes with two engines, one for propelling and the other for the vibratory work.

Tandem rear axles, both driving, move the rig at up to 24 mph over highway and at between 26 and 268 ft per min during compacting. Drive wheels are equipped with power brakes and air boosters. Front axle features power steering. All wheels are fitted with high flotation sand tires. Baldwin-Lima-Hamilton Corp., Construction Equipment Div., Box 433, Lima, Ohio.

Eye Bolt Hanger for Vent Pipes

A specialty fastener makes installation of ventilating lines in tunneling operation easier. The device is an eye bolt hanger, 2½ ft long and fashioned from ½-in-dia rod threaded at one end to receive a K type expansion shell used in rock anchor bolts.

Vent pipes are usually strung by drilling a hole in the tunnel overhead, running a "rockbolt" (sometimes only a hunk of scrap metal) into it, and jamming the bolt in place with a wooden wedge. At the end of the project there's the tedious job of removing the wedges to unjam the bolts.

Now, however, a threaded rock anchor bolt can be emplaced and a new eye bolt simply screwed in. At the end of the project, just unscrew the eye bolt, which can be used again. Anchors are left in the rock.

The hanger was designed for Frazier-Davis Construction Co., contractors for the 21,000-ft Jaybird Tunnel. The project is part of the Sacramento Municipal Utility District's hydroelectric development of the Upper American River in California. Pacific Coast Division, Bethlehem Steel Co., San Francisco, Calif.

Lightened Dump Trailer Can Carry Up to 43,000 lb

An extra-long dump trailer is designed to reduce deadweight to meet bridge laws. The 28-ft-long steel body is mounted on a 31-ft chassis to get payloads of up to 43,000 lb.

Corrugated steel construction is used to minimize weight. Hercules Steel Products Co., Galion, Ohio.

COMPARE

ELEVATED FLOOR SYSTEMS FOR COMPUTERS BY

ITEECO

Economy, availability, experience and qualified engineering. Accomo-Dek® by ITEECO is made in steel and extruded aluminum.

Call, write, wire

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INDUSTRIAL TUBULAR EQUIPMENT COMPANY

12906 Saticoy, North Hollywood, Calif.
Phone TRiangle 7-9821

Self-leveling level saves up to 50% surveying time

The Ertel Level, proved successful throughout the United States, automatically assumes a truly horizontal line of sight once it has been approximately leveled by its circular bubble.

The self-leveling system consists of two carefully-positioned prisms which are moved by a gravity-operated pendulum to a precise realignment with any accidental change of instrument setting—such as one tripod leg sinking into soft soil. *During extensive leveling operations, the instrument cuts working time as much as 50%.*

The Ertel INA Level—made in West Germany—is 5½" high; has a 30x telescope; weighs 19¼ lbs. (including tripod). Write for Bulletin INA which gives complete data.

PRECISION INSTRUMENTS INC.
1900 FIFTH AVENUE, TROY, NEW YORK

Longer bit life— with *new* Sandvik Coromant Bits

Sandvik Coromant Tungsten Carbide (Microphoto) Uniformity of size, even distribution of grain are marked. Free from porosity and impurities —therefore stronger, longer-lived.

Low quality Tungsten Carbide (Microphoto) Black marks are contaminations caused by deficient production control. They weaken the carbide, reduce its working life.

NEXT time you buy bits, specify Sandvik Coromant because they give more footage per bit, lower drilling costs. Here's why:

1 Only first-quality tungsten carbide is used —as shown in the microphotos above. This means less wear, longer life and a better job.

2 The bodies are precision-made of high quality alloy steel—tough enough to take the strain throughout the extra-long bit life.

3 The bigger Sandvik Coromant bits are all of X-design, which prevents rifling. No wonder Sandvik Coromant inserts are the most widely used in the world, drilling more than one billion feet every year.

SANDVIK COROMANT bits are supplied through Atlas Copco, the world's largest manufacturer of rock drills, who also supply Sandvik Coromant integral steels — the most widely used in the world — and Sandvik Coromant extension steel equipment.

Sandvik Coromant Detachable Bits are Available in the following Thread Sizes and Bit Diameters

Type	Thread	Available Diameters, in Inches															
		1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5
SHOULDER	TAPER	x	x	x	x													
	F		x	x														
	113		x															
	H			x	x	x	x	x		x								
	115			x	x													
	D						x	x	x	x	x	x	x	x				
	K													x	x	x	x	
BOTTOMING	1" Rope				x	x	x	x		x								
	1 1/4" Rope						x	x	x	x		x		x				
	400						x	x		x		x						
	1 1/2" Rope											x	x	x	x	x		
	600											x	x	x	x			
	700													x	x			
	J 7.5															x	x	
	2" Rope														x	x	x	x
	1000																x	

Write or phone today for further details to either of the addresses below:

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Metcalf & Eddy's Frank A. Marston is now . . .

A Man With 44,000 Bosses

Frank A. Marston, who took on 44,000 new bosses last week as he assumed the presidency of the American Society of Civil Engineers, has spent all 52 years of his professional life working for only one firm.

He's the senior partner in Metcalf & Eddy, famous old sanitary engineering consulting firm of Boston. He came in on the ground floor in 1907, the year he graduated from Worcester Polytechnic Institute. He has been a partner there since 1922.

A former vice president of ASCE, Frank Marston is the first president ASCE has had from New England since his former boss, the late Harrison P. Eddy, headed the society 25 years ago.

Frank Marston personifies the Metcalf & Eddy that was, the Metcalf & Eddy that wrote the book (American Sewerage Practice, three volumes published by McGraw-Hill in 1914, 1915 and 1935). Principally in him, and in E. Sherman Chase, among his eight partners, the tradition of Boston's Metcalf & Eddy as a leader of sanitary engineering consultants lives on. It is a tradition they and their associates keep alive through continued significant work in this field.

But the staid, typically Boston, firm has come to have two personalities in the years since World War II. The second is not that of Frank Marston although, as the firm's senior partner, his influence on its development cannot be discounted.

Beginning with airbase work in Bermuda early in the war and expanding into a Greenland base, the Spanish airbases and now the DEW line, M&E has become one of the biggest architect-engineers doing design and supervising construction of military bases abroad.

In this extensive postwar activity M&E has had as many as 700 technical employees and even now has close to 550. It's among the biggest consulting firms.

Paradoxically, its name and fame are greater in the lesser facet of its dual personality. It is better known for its sanitary engineering, although this is now overshadowed by A-E work for the military, insofar as fees are a measure. As Frank Marston points out, there are more jobs but fewer dollars in sanitary engineering.

Partners in the firm have lunch together daily when they're in Boston, exchange ideas and conduct much of their firm's business in this informal way. But, there are six partners who stick pretty closely to the sanitary engineering while the other three work primarily on military contracts.

The firm's sanitary work is nationwide—Pittsburgh, Los Angeles, Miami, Louisville. There has been other work, too—building foundations, bridges—but not much of it and not much beyond Boston.

Frank Marston is primarily a sanitary engineer and by coincidence the third consecutive ASCE president to represent that branch of the profession (following Francis Friel and Louis Howson). But he is also a soils and foundations man, a former executive committee chairman of ASCE's Soil Mechanics and Foundations Division.

In other committee work for ASCE he has had important assignments in both the technical and the professional areas of ASCE interest. He hopes to consolidate past gains during his year in office and strengthen what he sees as weak spots. Principally he hopes to tackle the problem of bringing ASCE closer to more of its individual members, affording them means for greater participation.

Another task is successful completion of ASCE's drive for funds for the United Engineering Center in New York. This task was brought to within about $100,000 of its $800,000 goal in the past year under ASCE President Frank Friel, who Frank Marston succeeded at the annual meeting in Washington last week.

Careers

Business

The Komline-Sanderson Engineering Corp., Peapeck, N. J., has established a Canadian branch to handle the manufacturing and sales of engineering equipment. Komline-Sanderson, Ltd., has offices in Brampton, Ont. **Hugh R. Fielding** has been appointed manager in charge of Canadian sales. He is former district engineer with the Ontario health department.

H. S. Allen has been named vice president of the Hamilton Kent Mfg Co., Kent, Ohio. He is responsible for field technical services in the company's U. S. and Canadian plants.

A new business designed to bring industry to South Carolina has been formed by **Irwin Kahn** and **Joseph G. Hamrick**, both of Columbia. The new firm, Kahn-Southern, engages in industrial planning, building and financing and is equipped to build multi-million dollar projects. Mr. Kahn, president of the new venture, is also president of the M. B. Kahn Construction Co., Columbia. Mr. Hamrick, executive vice president, is also with the Carolinas branch of the Associated General Contractors and is in charge of the Trade Association's operation in South Carolina.

new IDEAS

there's an Inland construction steel for everyone

These days, a lot of bright architects and engineers who aren't afraid of new ideas, are turning the construction business upside-down. Everywhere one looks, new techniques, new materials, daring new concepts, are changing the face of America. Yet, as every practical contractor can tell you, all of these new-direction ideas are firmly based upon the proven strength and dependability of steel.

Here in the Midwest, where Inland Steel Company's strategic location offers definite service advantages, builders have come to rely on the excellent quality and wide range of construction steel products made available by Inland. There's an Inland Sales Office near you.

A fully integrated steel mill with the technical skill, the products, and the experience to help you solve your steel construction problems.

INLAND **INLAND STEEL COMPANY** • *30 West Monroe Street • Chicago 3, Illinois*

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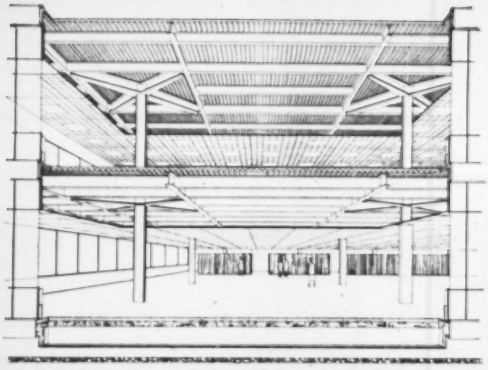
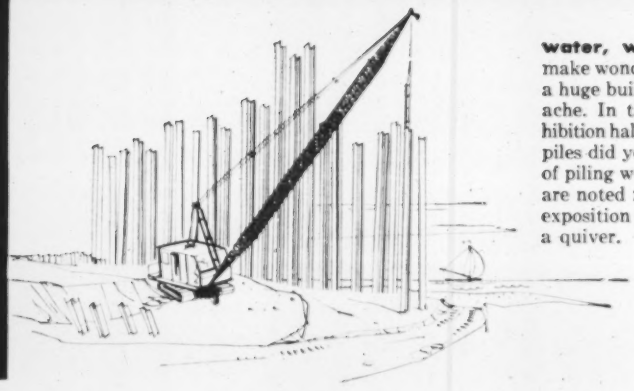
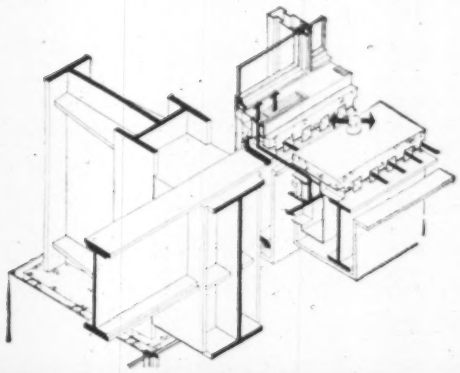


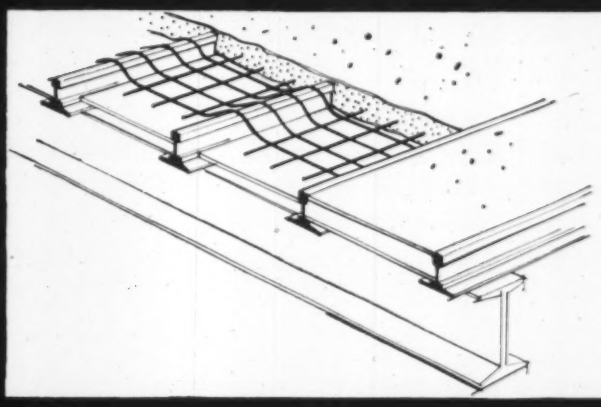
umbrella cross heads speed construction—add interesting design note—For this handsome and highly utilitarian structure, the key to the structural steel system was unique cross heads made up of Inland Wide Flange Beams. Welded into an umbrella-like design they were prefabricated into single units. On the job each unit was fastened to a supporting column using standard connections with a minimum of field welding. 36 such units were used per floor with 35 feet between supporting columns, thus providing 35-foot clear span square bays throughout. Interesting also, is the resultant 17½ foot cantilevered overhang around the entire perimeter.



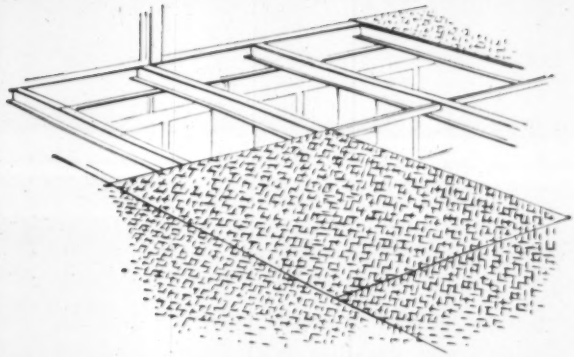
water, water, everywhere! Sand shores make wonderful bathing beaches, but anchoring a huge building in such material can be a headache. In the construction of an enormous exhibition hall right on the lakefront Inland bearing piles did yeoman service. More than 6,000 tons of piling were used and though the Great Lakes are noted for the fury of their storms, the new exposition center will ride them out without a quiver.



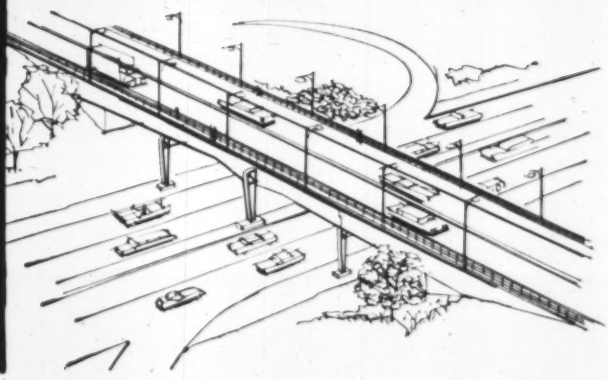
unique solution to a building frame problem—This special "torque" joint was the answer to a number of problems in the construction of a building frame where wind load was an important factor. The joint distributed the load between columns and spandrels as well as distributing both live and dead load between columns and girders. Fabricated from Inland Steel Plate at the same time as the vertical supporting columns, the "torque boxes" made field connection with girders a quite simple job. Note also the cellular floor construction—an Inland solution to the problem of handling phone, heating, cooling, utility ducts of all kinds.



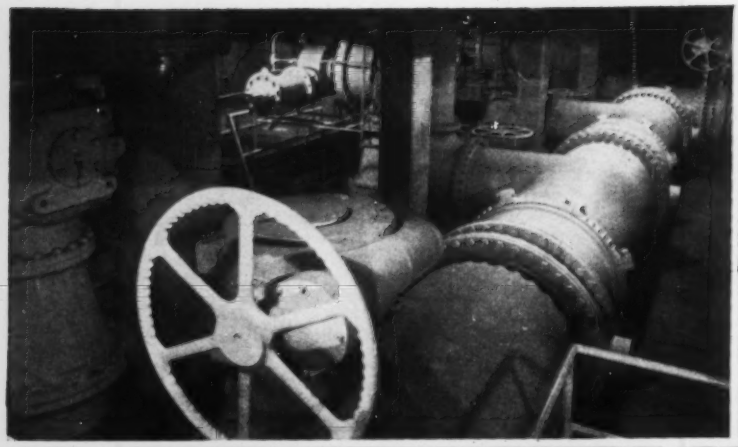
weight-saver for short-span roofs... Inland sub-purlins—Inland sub-purlins are especially designed to provide a lighter, more efficient member for shorter-span roof construction. In addition, they make a real contribution to the modern good-looks so evident in today's construction. Installation is fast, easy, and entirely without waste, for Inland sub-purlins are cut to the length required for the specific roofing job. Mill painted, ready for clipping or welding to the purlin member, they're ideal for gypsum, aggregate or grout fill—all types of pre-cast or poured roofs.



new way to take advantage of prefabricated floor plate—The inherent strength of versatile Inland 4-Way Safety Plate permits its use as an integral part of the supporting structure. Used everywhere as a long-lasting material for floors, walls and stairs in industrial plants and institutional buildings, 4-Way Safety Plate is here used as part of the supportive framework. ¼ inch floorplate was used and a remarkable design span of 48 inches between centers was achieved. Additional advantages on this job were ease of cleaning and maintenance, fire safety, and slip-proof protection for future tenants and their employees.



how to stretch a girder for 500 feet—Inland Plate and Structural steel is doing its bit to make the nation's network of superhighways a reality. To span an overpass under construction in the very heart of a huge metropolitan city, Inland prefabricated sections for the enormous girders. Fifty such sections ranging from 80 feet to 120 feet in length and tapered 4½ feet to 7 feet in height were built-up from Inland plate, transported to the site where they were welded into giant girders stretching for more than 500 feet to support multiple-lane roadways.



Shown in the Pumping Station are three 20-inch ROTOVALVE pump check units, four 54-inch suction header butterfly valves, and three 24-inch pump suction butterfly valves.

South Holly Filter Plant interior shows 9 Allis-Chalmers transfer pump station butterfly valves at the right, a wash water controller butterfly valve at left center, and 3 wash water butterfly valves at the lower left.

Consulting Engineers:
Freese, Nichols & Endress

South Holly Station In Fort Worth Installs
71 ALLIS-CHALMERS VALVES

At the city of Fort Worth's new, 50 MGD South Holly Filter Plant and High-Service Pumping Station, 66 Allis-Chalmers rubber-seated butterfly valves, in 18-inch to 54-inch sizes, have been installed. Five 16- to 20-inch A-C ROTOVALVE units are also being used on pump check service.

A-C rubber-seated butterfly valves are known for their dependable operation with few maintenance problems. Through-type rubber seats give complete body protection. Wedging action of the vane against the tough, flexible rubber assures positive closure, even around the shaft bosses. Angle-seated vanes can be adjusted to give tight shutoff throughout the valve's life by resetting the operator stops.

To obtain complete information about the full A-C line of butterfly, ROTOVALVE and ball valve units, contact your A-C Valve Representative, or write Allis-Chalmers Hydraulic Division, York, Penna.

ROTOVALVE is an Allis-Chalmers trademark.

Hydraulic Division RESEARCH | DESIGN | HYDRODYNAMICS | ENGINEERING | FABRICATION

ROTOVALVE • Ball Valves • Butterfly Valves • Free-Discharge Valves
Hydraulic Turbines & Accessories • Pump-Turbines • Pumps • Liquid Heaters

AC ALLIS-CHALMERS

1110

RR Track Relocation is 38% Under Estimate

To clear a right of way for the Grand Rapids Expressway on U. S. 131 in Grand Rapids, Mich., 2.6 miles of Pennsylvania Railroad track will be relocated at a cost of $202,701 per mile. The Michigan State Highway Department award at $527,023, to Chas. Nurrie Co. & Armond Cassill, Inc., Kalamazoo, is 38% under the engineer's estimate.

The contract breaks down into two parts:

	Amount	% of Total
Grading and drainage structures	$196,640	37.3
Relocation, removal and shifting of tracks	330,383	62.7
Total cost	527,023	100.0

Earth excavation, 57,200 cu yd at $1.75, accounts for over half the grading and structures portion of the contract, and is 19% of the total cost. Eighteen buildings will be removed and relocated, and foundations constructed for four other relocated buildings.

The bidding included:

1C Chas. Nurrie Co. & Armond Cassill, Inc., Kalamazoo, Mich	$527,023
2 Gillissee Constr. Co. & A. E. Pierce, Grand Rapids, Mich	585,723
3 Peter Kiewit Sons Co., Omaha, Neb	717,491
EE Mich. State Highway Dept., Lansing	849,648

Bids: 9-2-59 Items	Unit	Quantity	Unit Prices 1C	2
Grading & Drainage Structures				
Clearing	ac	2.7	$700.00	$500.00
Trees, 13-24" dia remov	ea	1	100.00	100.00
Pavement, old remov	sy	1,635	2.50	5.00
Masonry & concrete remov	cy	3,620	8.00	8.00
Sidewalk remov	sy	285	1.00	1.00
Catch basins remov	ea	1	50.00	50.00
Excavation, earth	cy	57,200	1.75	1.25
Borrow, shoulder	cy	100	4.00	1.50
Subbase (LM)	cy	1,000	2.60	2.30
selected, 23A (LM)	cy	230	3.00	3.50
Porous matl, grade A (LM)	cy	170	1.50	2.30
grade B (LM)	cy	130	3.50	2.50
Earth grade, trim & finish	sta	138	30.00	30.00
Culverts, class B, 12"	lf	56	6.00	6.00
Cor metal pipe, 24"	lf	70	8.00	7.50
Sewer, 10' or less deep, 6"	lf	52	1.80	2.50
12"	lf	164	6.00	4.10
pipe underdrain, 6"	lf	800	2.00	2.50
Catch basin,				
3E, 10' or less deep dp	ea	1	250.00	200.00
6E, 10' or less deep	ea	1	270.00	200.00
Side inlet, 8F	ea	1	300.00	200.00
Fine grading & cleanup	sta	8	25.00	30.00
Concrete end header	lf	478	7.00	3.00
pavement, 9" uniform	sy	1,830	8.00	6.00
Pavement reinforcement	sy	1,830	0.80	0.75
Bit conc wearing course	t	76	27.00	20.00
Aggregate base course	t	7,600	2.20	2.50
Calcium chloride, admixed	t	23	65.00	70.00
Aggregate approaches	cy	98	4.00	4.00
Water, 1000 gal units	u	5	10.00	20.00
Maintain traffic	ls	job	1,000	2,000
Pavement replace	sy	490	7.50	8.00
Temporary grade crossing	lf	800	4.00	4.00
Relocate, Remove & Shift Tracks				
Stone ballast, type Y	cy	6,250	4.50	4.41
Pit run gravel	cy	35,400	1.60	2.45
Track, take up	lf	62,500	0.70	0.70
Turnouts, take up on track				
not in service	ea	91	150.00	167.00
in service	ea	24	200.00	211.00
Track shifted, 1' or less	lf	1,400	0.75	1.11
1' to 5'	lf	2,300	1.00	1.67
Tracks, main b	lf	13,700	1.50	1.78
yard b	lf	36,000	1.40	1.72
Turnout, new track #10 b	ea	26	350.00	405.00
#8 b	ea	27	325.00	389.00
existing track, not in				
service, #10 b	ea	1	400.00	444.00
#8 b	ea	6	350.00	427.00
under trf, #10 b	ea	12	450.00	444.00
ser, #8 b	ea	13	350.00	428.00
Raise & line track on ballast, 6" lifts	lf	149,000	$0.20	$0.30
4" lifts under trf	lf	25,000	0.30	0.30
Final lining & surf all trks & turnouts shifted constr	lf	79,000	0.10	0.12
Trks at new conns rehabil	lf	2,000	1.00	0.23
Rail ends build up	ea	750	3.50	4.44
Track shifted, 5'-10'	lf	800	1.25	2.22
Heavier rail in trk instal	lf	1,100	1.00	1.45
Constr fndn & reloc bldgs				
#2A	ls	job	625.00	1,900
16A	lf	job	625.00	1,900
49	ls	job	625.00	250.00
50A	ls	job	625.00	1,950
Relocate bldgs #1, 2B, 3, 9, 16B, 29, 40 & 42	ea	8	100.00	100.00
#46	ls	job	100.00	75.00
#50 & 51	ea	2	100.00	50.00
frame sheds	ls	job	100.00	200.00
Remov stock pen	ls	job	50.00	100.00
bldg #25	ls	job	50.00	100.00
#39, 52, 59 & 60	ea	4	50.00	500.00
Turnouts shift	ea	5	350.00	333.00
Temp track, constr & remove	lf	5,000	1.80	2.61
turnouts, constr & remove	ea	5	500.00	583.00
Thermit weld rail joints	ea	37	8.00	56.00
Crossing matl, furn & instal, tr timb sect type, prefab	lf	456	18.00	28.00
bit, with rail flangeways	lf	16	10.00	6.00
driveway	lf	174	3.00	4.00
Crossing matl, furn & reinstal tr timb sect type, prefab	lf	72	6.00	7.77

b Build
Completion scheduled for 6-30-60

Sign Painting Priced at Chicago Airport

A lump sum contract for general work on maintenance facilities for American Airlines at the Chicago O'Hare International Airport included unit prices for "adding" signs. Work is for Chicago's Department of Public Works, Department of Aviation. Naess & Murphy, Chicago, is the consultant.

This is how the bidding ranged:

1C Malan Constr. Co., New York City	$5,387,000
2 Turner Constr. Co., Chicago, Ill	5,514,000
19 Joseph J. Duffy Co., Chicago, Ill	6,232,749

Bids: 7-15-59 Items	Unit	Unit Prices 1C	2
Base bid, general work	ls	$5,387,000	$5,514,000
Add or deduct for alternates:			
Piling, over lengths specified, furnished & driven	lf	+4.50	+4.70
under lengths specified, not furnished or driven	lf	−2.25	−2.00
Painted letters or numerals, solid colors, 1"	ea	+0.50	+0.25
1½"	ea	+0.50	+0.27
2"	ea	+0.55	+0.33
3"	ea	+0.60	+0.38
4"	ea	+0.65	+0.43
6"	ea	+0.70	+0.48
8"	ea	+0.80	+0.55
2 colors, 1"	ea	+0.65	+0.44
1½"	ea	+0.65	+0.55
2"	ea	+0.70	+0.66
3"	ea	+0.75	+0.76
4"	ea	+0.80	+0.86
6"	ea	+0.85	+0.99
8"	ea	+0.95	+1.10
Directional arrows, solid colors, 1x6"	ea	+0.70	+0.63
1x8"	ea	+0.80	+0.70
1½x10"	ea	+0.80	+0.77
2x12"	ea	+0.80	+0.99
2 colors, 1x6"	ea	+0.85	+0.99
1x8"	ea	+0.95	+1.21
1½x10"	ea	+0.95	+1.52
2x12"	ea	+1.00	+1.83
Sprinkler heads compl w all piping & accessories, additional installed in place	ea	+20.00	+15.50
not furnished or installed	ea	−18.00	−12.00

Completion schedule: 400 cal days
Liquidated damages: $1,000 day

BEN H. PETTY
Renowned Engineer & Author

AN OBVIOUS DISTORTION OF FACTS

Advertisements for cement concrete have said:

"You save as much as 4% on your car-operating expenses when roads are built of concrete. For you don't have that surface 'drag' working against you as you do on asphalt pavement."

CONTRAST the above statement with the following excerpt from the study* on which the cement claim was based:

"It costs 4% more to operate over an intermediate type surface than it does over a concrete surface and 30% more to operate over a gravel surface than over a concrete or high-type bituminous (Asphalt) surface. *From this it follows that the savings to the motorist by replacing an intermediate type surface with a concrete or high-type bituminous (Asphalt) surfacing is 4%* and by replacing a gravel road with an intermediate type surfacing, approximately 26%."

CLEARLY, the study indicates NO DIFFERENCE in operating expense between concrete and modern high-type Asphalt pavements!

The facts speak for themselves.

YOU BE THE JUDGE!

*"*A Proposed System of Highway Financing for the State of California,"* by Bertram H. Lindman, published by the State of California, November 1946.

Ben H. Petty

Presented as a Public Service by

THE ASPHALT INSTITUTE

Materials Prices

Monthly Market Quotations by ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity, Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized
Atlanta	$170.10pe	$153.25pkke	$306.55pe	$344.85pe	.....	.....	$31.50uu	$33.75uu	$36.50kk	$28.50kk	$28.50kk
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.60	23.20	.....
Birmingham	135.00pss	152.00pss	.....	303.00p	376.00p	465.00p	27.00ff	38.00jj	38.2mm	20.87mm	26.33mm
Boston	232.00tmm	248.00tmm	463.25tmm	556.00tmm	.....	.....	43.50p	58.00p	42.00ll	34.00ll	.....
Chicago	137.00ll	149.00ll	280.00ll	.....	.....	.....	32.00	34.00	38.00ll	35.20ee ll	.....
Cincinnati	160.00mmjre	172.00jmmre	327.00jddmm	390.00jmmre	425.00jmmre	500.00jmmre	48.00jk	47.00jk	29.10mm	25.10mm	29.10mm
Cleveland	200.00tt	213.00tt	.....	453.00tt	.....	693.00tt	41.75tt	45.75qqtt	32.75ptt	28.00ptt	.....
Dallas	155.00	155.00	306.00	370.50	452.25	560.00	27.50	49.00	41.80	24.38	28.50
Denver mm	170.00	185.00	310.00	310.00	390.00	442.00	30.00	54.00	48.00p	42.00p	46.00p
Detroit	242.00mm	258.00mm	483.00mm	548.00mm	723.00mm	827.00mm	51.50pmm	52.00pmm	38.00mm	30.00mm	40.00mm
Kansas City mm	158.00	158.00	312.00	312.00	400.00	500.00	34.00	34.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	38.00uu	.....	38.00mmll	38.00mmll	39.00mmll
Minneapolis	208.00pe	225.00pe	452.00pe	225.00pwe	.....	.....	45.60vpe	54.00ype	49.00bbe	38.00bbe	52.00bbde
Montreal	168.78auqoo	180.93auqoo	325.00auqoo	220.00qoo	400.00qoo	.....	48.25bll	56.30bll	39.00	22.00	13.25
New Orleans	198.00	198.00	370.00	370.00	.....	.....	42.00	55.00	44.00	32.00	32.00
New York	177.00h	189.00h	283.00ch	285.00hn	.....	.....	46.00p	.....	40.00p	38.00p	.....
Philadelphia R*	202.10ss	215.60ss	323.40ss	485.10ss	.....	.....	40.00mm	50.00mm	39.50zzmm	21.50	21.50
Pittsburgh pp	200.00t	213.00t	400.00t	453.00t	607.00t	693.00t	39.00t	46.00t	38.00t	33.00t	34.00t
St. Louis	180.00mmpp	190.00pp	385.00pp	401.00ppp	459.00pp	621.50pp	44.00mmpp	45.50pp	1.00aapp	.80aapp	1.35aapp
San Francisco	156.85*mm	177.10*mm	235.30dd*mm	159.40qqmm	.....	.....	43.00*mm	43.00*mm	29.24mm	29.24mm	31.74mm
Seattle	235.00pt	270.00pt	490.00pt	265.00pwt	.....	.....	52.00tt	66.00tt	52.00bbt	38.00bbt	4.50mbbt
Toronto	158.00rr	173.00rr	336.00rr	263.00frr	378.00rr	.....	25.00rr	63.00rr	38.00mm	34.50mm	33.50mm

*½ F.o.b. yard. **F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *h Smooth. *x dumped. *y Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 6 x 12 x 12. *ee $4.50 del. *ff 8 x 12 x 12 in.-8 cell. *gg Smooth. *hh less 25c disc., cash. *ii F.o.b. plant. *jj rough; smooth; $40. *kk 3½ x 11½ x 11½. *ll less 2% disc. 10th. *mm less 2%, 10 days. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% sales tax. *qq 8 x 5½ x 11½. *rr 2½% disc., 10 days. *ss 5% disc., 10 days. *tt less 2% disc., 15th. *uu less 50c M, 10 days. *vv 4000 pcs. and over. *xx revised eff Sept. 1. *R revised * Philadelphia prices revised, watch for analys's.

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. **Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 68 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *w Ready-mixed. *x 55-gal container. *z Drums. *aa 15 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *dd Asphalt pitch in 100 lb package. *ff 5-ga drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more. *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *vv Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. *xx Sept. revised to $12.00. *zz Sept. revised to $2.80. *aa 400 lb barrels. *bb ASTM Spec. D962-49. *cc 95%. *dd Std. black. *ee Milt. spec.: ETTP27; FTTY81; GTTP31. *ff less 2% disc., cash. *gg Per 100 lb. *hh less 10% disc., 10 days. *ii Add 2% sales tax. *jj CL. *kk 1 ton or more. *ll under 500 lbs. add $1. *mm 50 lb. bag. *nn Sept. revised to $2.43. *oo Sept. revised to $3.23. *R revised.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. In 600 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. In 100 lb. cases In oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$13.75qqJO	$24.00qqJ	$3.59	$3.86	$3.31	$2.90kk	$2.12kk	$2.49kk	$0.67kk	$63.50kk
Baltimore	17.50pp	24.00	3.00	4.40	3.50	2.78	4.25	4.25	.48	56.75
Birmingham	26.00tJ	29.00tJ	3.90J	3.40J	.....	3.08tmm	2.28iitmm	2.28iitmm	.75ffmm	45.00ermm
Boston	24.95toomm	26.90tmmm	.....	.....	.....	3.74q	2.48q	2.83q	.50q	58.00q
Chicago	15.25rJqqpp	24.00tJ	.....	.....	.....	3.80ukk	2.76okk	3.00okk	48.00bbkk	57.70tkk
Cincinnati	15.25tJO	24.00tJ	.....	.....	.....	2.87mm	2.02mm	2.42mm	.428ymm	55.96Hmm
Cleveland	25.65t	26.90t	2.54qqP	2.82zzqq	3.29qqq	2.82q	2.05o	2.42o	.484y	49.00qq
Dallas	22.50	23.50M	.....	3.25B	.....	3.00u	3.00o	3.00o	.470	68.00kk
Denver	23.00n	24.00	3.98	5.20	3.70	2.86	2.12o	2.80o	.50ff	50.00
Detroit	16.25r	24.00rr	2.70mm	3.95mm	2.70mm	2.82mm	2.05ommll	2.42ommll	.56ffmm	49.00mm
Kansas City	26.90qqoo	25.65	3.99	3.43	3.01	4.01mm	2.72omm	2.72omm	.80y	.....
Los Angeles	15.25yy	22.00	3.30n	4.50n	4.20n	3.40mkk	2.40mtkk	l	.75mykk	l
Minneapolis	17.23N	21.50kk	.....	.....	.....	3.28kk	2.59hkk	2.42hkk	.438kk	50.00rkk
Montreal	19.45O	26.00vtt	5.52Dfft	6.55zff	5.10kfft	5.40	4.65f	4.65f	1.80	4.40uu
New Orleans	23.00Jpp	24.00J	.....	.....	.....	2.78	1.98	2.85	.680	45.50
New York	16.25ooO	29.75	.....	.....	.....	3.06zz	2.02zzo	2.45o	.438u	49.00*
Philadelphia R*	16.25Omm	24.75mm	3.35mm	3.90mm	2.65Rmm	4.70	3.60	2.85	.515	50.00
Pittsburgh	21.00mqqJ	24.00J	2.20#EJ	2.25#FJ	2.25#GJ	3.57#H	2.75#H	2.95H	.48H	55.00H
St. Louis K	25.65tm	26.90	.....	.....	.....	3.20ummm	2.31hhK	2.96hhK	.428yK	62.00K
San Francisco	26.70mm	26.90mm	3.20mm	4.30mm	3.50mm	2.95mm	1.97aaumm	3.10mm	.46ff	54.00
Seattle	13.35HO	24.00H	.....	4.19ccffJ	.....	3.64qccH	3.16hccH	.....	.55cc	.....
Toronto	14.45	26.50	5.15J	6.18J	5.95J	2.70	2.40aae	2.40e	1.01J	49.00A

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	PLASTER‡ Gauging per ton	VERMICULITE‡ Home Insulation pellets	VERMICULITE‡ Plaster aggregate	VERMICULITE‡ Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	PERLITE‡ Concrete Aggregate Untreated	ALUMINUM Flat .100" th 36"x108" & 48"x144" per lb/pt	SHEET† Corr roof .032" th 35"x12' per shu	STAINLESS STEEL† SHEET-TYPE 302p 20 ga 48"x96"-120" per cwthh	STAINLESS STEEL† SHEET-TYPE 302p 28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ⅝"b	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ½"c
			per bag of 4 cu ft										
Atlanta	$32.00ss	$42.00ss	$1.55sss	$1.65sss	$1.80slss	$1.65sss	$1.65sss	$0.440noo	$8.83n	$65.68nzz	$74.43nzz	$0.1668ss	$0.2337ss
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.55	0.462	0.451r	63.00	71.25	0.16	0.2288
Birmingham	37.00ss	43.00ss	1.55ss	1.55ss	1.60lss	1.27ss	1.27lss	0.458M	9.62K	67.34K	76.09K	0.16ss	0.23ss
Boston	24.00	30.00	1.40	1.40	1.40	1.55sss	1.50sss	0.462	29.35p	64.42dd*zz	72.67dd	0.1668ss	0.2337ss
Chicago	26.80tt	26.80tt	1.55	1.60l	1.60l	1.60	1.60	0.506z	9.30a	64.15ee	72.40ee	0.1762	0.2464
Cincinnati	23.85*ss	23.85*	1.75*ss	1.75*ss	1.75*ss	1.85ss	1.90ss	0.434	9.59	65.30zz	74.05zz	0.1668ss	0.2337ss
Cleveland	28.00N	45.00N	1.14ss	1.17ss	1.25lss	1.45ss	1.45ss	0.458aa	8.48	64.33oozz	72.58oozz	0.1633tt	0.2288tt
Dallas	30.65	32.65	1.07	1.23	1.37	1.21	1.32	0.484	0.517r	65.00	78.00	0.1668	0.1986
Denver	27.00	27.00	1.50	1.40	1.50	1.50ss	1.60ss	0.452	10.89	65.00qq	73.57qq	0.1668	0.2337
Detroit	28.00ss	28.00ss	1.27ss	1.31ss	1.40ss	1.45kttt	1.50kttt	0.452a	10.19a	65.15azz*	73.90azz*	0.1668	0.2337
Kansas City	30.00	35.00	1.19E	1.21E	1.29lE	1.21	.....	0.444	23.20qqvv	67.50E	76.25E	0.1672	0.2464
Los Angeles	27.00tt	28.00tt	1.25ktt	1.20ktt	1.25tt	1.06	1.10	0.486	10.543	65.02	73.27	0.1688	0.2288
Minneapolis	35.00F	35.05F	1.65tt	1.80F	1.95F	1.40S	1.40S	0.468	16.23	63.61GR	69.61GG	0.1762†	0.2067
Montreal	27.60h	35.60h	1.25h	1.40h	1.50h	1.15r	1.15r	43.95A.H	12.10H	64.75H	.....	0.1840	0.2187
New Orleans	34.00	48.00	1.25P	1.35P	1.25P	1.25P	1.25P	0.526	24.90	71.50	72.45	0.1762	0.2464
New York	27.00	35.00	1.40	1.35	1.55	1.35	1.45	0.462aT	0.2335aR	64.08aB	72.33aB	0.1633	0.2288
Philadelphia	26.50	31.00ss	1.30ss	1.30ss	1.40lss	1.25ss	1.25qqss	0.44	9.46	63.00	71.25	.16-.18	.22-.24
Pittsburgh *	30.00nn	33.00nn	1.50nn	1.50nn	1.50mm	1.50nn	1.50nn	0.452	9.46	64.00	76.23pp	0.1555	0.1848
St. Louis uu	30.00uu	41.00uu	1.50uu	1.60uu	1.55uu	1.60uu	1.65uu	0.452	10.28	65.39Kmm	71.89yyuu	0.1631fmss	0.1941fmss
San Francisco	29.50ss	39.50ss	1.38ss	1.38ss	1.50ss	1.38ss	1.58ss	0.502	9.76	66.50K	74.25K	0.1762	0.2464
Seattle	42.40nn	45.60nn	1.55nn	1.25knn	1.85lnn	1.50k	.....	0.513D	9.90D	68.77D	80.15D	0.1668	0.1732
Toronto	30.40	50.00	1.45	1.65	45.00Q	0.3995	24.75ap	23.74	86.52	0.2917	0.3265

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d per sf *e 34" x 60" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25c for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108"; 10.81 lb sh; 48" x 144"; 21.7 lb sh *u 19.31 lb sh *v fob plant *w 48" x 144" *x 0.11"th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2 cwt boxing; $0.75 cwt on skids *hh Theoretical wt for 48" x 96": 60.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt: 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *ww Per 100 sf. *xx less ½% disc. 10 days. *yy .021 ga. *zz .061" th. *aa Per 100 lb. *bb crated. *cc 15M lb. *dd less ½% for cash. *ee Quantity differential. *ff less 5% disc. 10th. *gg less ½% disc. 10th. *hh Fed. tax exempt. *kk less ½%, 10 days. *ll 5% disc. 30 days. *mm 3003: .452 for 1100. *nn less 2%, 15th mo. *oo less $2, cash & carry. *pp less 2%, 15 days. *qq per ton. *ss add .10 bag under 200 bags. *tt 5000 quantity on 4000 skids. *uu 30 Msf quantity: $0.245 in 10 Msf quantity * Philadelphia prices revised, watch for analysis. *R per sq ft.

THERE MUST BE AN EASIER WAY

SUPPLYING BRANCHES AND SUBCONTRACTORS WITH BLUEPRINTS —IT'S EITHER A FAMINE OR A FEAST
WHAT'S THAT —WE DIDN'T SEND ENOUGH PRINTS FOR HALF YOUR MEN AT CAPE CANAVERAL?
LAST WEEK HE SENT 200 TO A GUY WHO NEEDED ONLY ONE
HOW DOES HE DECIDE—FLIP A COIN OR SPIN A ROULETTE WHEEL?
WE COULD THROW A BRAWL WITH THE AIR MAIL CHARGES ON THAT STACK MAZIE'S SENDING OUT
I KEEP TELLING HIM IF WE HAD A BLUEPRINTER MAKE AUTOPOSITIVE PAPER INTERMEDIATES WE'D ONLY HAVE TO SEND ONE OF THEM TO EVERYONE

Much easier for you, and much less costly, too, when you mail a Kodagraph Autopositive Paper intermediate instead of a bundle of blueprints.

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Kodak
TRADE MARK

"Jet age" contractor completes 3700-ft. runway extension

GULF MAKES THINGS

Racing against time and plagued by heavy summer rains, A. Tomasso, Inc. of New Britain, Connecticut, became one of the earliest contractors to feel the competitive impact of the commercial jet age.

Tomasso won the contract to extend the main runway at Hartford's Bradley Field, where the old 6000-ft. runway was too short for commercial and military jet aircraft. The contract called for earth-moving, compacting, base-laying and paving . . . for a 2700-ft. primary extension of the runway, plus a 1000-ft. over-run for emergencies. Earth-moving added up to more than 1,000,000 cubic yards. Last July, in spite of unusually wet weather in the summers of 1958 and 1959, they finished on time —plenty of proof that Gulf makes things run better.

Clean-burning Gulf diesel fuel powered all their heavy equipment, including three new Euclid TS24 scrapers, two Allis-Chalmers 21 bulldozers, a D-8 and a D-9 "Cat," and a "Cat" 12 grader. Louis D. Gronowski, Master Mechanic for A. Tomasso, Inc., reports: "Our maintenance problems were reduced by the clean-burning qualities of Gulf diesel fuel. Our equipment kept working—around the clock—with very few mechanical delays, and the engines stayed unusually clean."

And Angelo Tomasso, President, says: "We've never in our history had to pay a penny in damages for being behind schedule. We're not going to start now."

on time, in spite of excessive rain . . .

RUN BETTER!

Let Gulf supply the fuels and lubricants for *your* equipment, and you'll see how Gulf makes things run better. Just call the Gulf Sales Engineer at your nearest Gulf office, or write for 88-page "Gulf Contractors' Guide," the maintenance manual for heavy equipment.

GULF OIL CORPORATION
Dept. DM, Gulf Bldg., Pittsburgh 30, Pa.

GULF

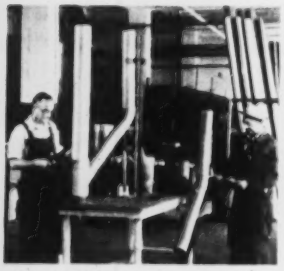
William Tomasso, left, on-site Supervisor for A. Tomasso, Inc., of New Britain, Connecticut, checks heavy equipment maintenance in "Gulf Contractors' Guide" with Lee Douglas, Gulf Sales Engineer.

SP 9842

WEST COAST'S LARGEST OFFICE BUILDING USES COPPER TUBE PLUMBING BY CHASE®

Architect: *Welton Becket & Assoc.* • Mechanical Contractor: *The Scott Co.* • Wholesaler: *Slakey Brothers* • General Contractor: *Robert E. McKee*

The new Kaiser Center office building saves up to 22% on installation time using prefabricated plumbing sections



IN THE SHOP, the Contractor for the Kaiser job prefabricated 354 sub-assembly styles using copper tube by Chase.

ON THE JOB, installation of these sub-assemblies is quick and easy, using solder joints that are leak-proof and pressure-tight.

In the process of installing part of the plumbing—water lines, drainage, waste and vent—in the new Oakland building which will be the headquarters for the world-wide operations of the affiliated Kaiser Companies, the contractor turned to prefabrication of repetitive assemblies, using easily-installed copper tube. The mechanical contractor, Scott Company of Oakland, has pre-assembled a total of 354 styles.

The Scott Company reports that the units were prefabricated in their own shops, then trucked to the job site for installation. They found that off-site prefabrication was easier, and that the solder joints used in joining copper lengths were not subject to damage during transportation. And Mr. Scott estimates that prefabrication of repetitive assemblies can reduce total installation time up to 22% of an on-the-job assembly.

YOUR job can benefit from the advantages of copper plumbing by Chase. So talk over your next installation with your own plumbing contractor, or write to Chase at Waterbury 20, Connecticut.

Chase BRASS & COPPER CO. WATERBURY 20, CONN.
Subsidiary of *Kennecott Copper Corporation*

THE NATION'S HEADQUARTERS FOR ALUMINUM • BRASS • BRONZE • COPPER • STAINLESS STEEL AND FORGINGS

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York Maspeth, L. I. Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

Labor and Materials Prices

Monthly Market Quotations by ENR Field Reporters

HOURLY WAGE RATES—Base rate + fringe benefits

	Common Labor: Building	Common Labor: Heavy Const	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Truck drivers: 1½ T	Truck drivers: under 4 cy	Truck drivers: over 4 cy
Atlanta	$1.825	$1.825	$3.85	$3.20	$3.45+7½¢	$3.325	$3.25	$3.50+10¢	$3.70+20¢	$1.825	$1.925	$2.175/R
Baltimore	2.20+7½¢	2.20+7½¢	4.10+10¢	3.30+7½¢/	3.90+7½¢	3.35 4.05+10¢/i	3.80+7½¢	3.75+7½¢	3.74+9¼¢	2.15+7½¢	2.15+7½¢	2.25+7½¢
Birmingham	1.85	1.95	3.95	3.15	3.45+10em/n	3.18	3.27	3.65	3.40+10e/Rp	1.90	2.10	2.35
Boston	2.65+10¢	2.55+10¢	3.80+30¢	3.45+10¢	4.02+20¢	3.90+10¢	3.65+15¢	3.90+25¢	3.20+10¢	2.70+5¢	2.70+5¢	2.70+5¢
Chicago	3.02½+7½¢	3.02½+7½¢	4.07½+7½¢	3.75+20e/o	4.15+16e/n	3.75+5¢	3.95+23¢	4.10	3.95+23¢	2.48+15¢		
Cincinnati	2.75	2.65	3.90+10¢	3.57½	3.80+10¢	3.475 3.70/i	3.725+.01	3.92+4¢	3.95+9½¢	2.55+2½¢	2.65+2½¢	2.75+6½¢
Cleveland	3.25b	3.165b	3.965+10e/b	3.99b	3.89+10e/b	3.99b	3.99a	4.05b	3.80+19e/b	2.82+15ea	2.82+15ea	2.82+15ea
Dallas	1.80	1.80	3.95	3.35b	3.425+7½¢	3.375	3.625+13¢	3.50+7½¢	3.575+8½¢	1.80 2.025	1.80 2.025	1.80 2.025
Denver	2.25	2.25	3.90	3.50	3.41+7½¢	3.15	3.625+12¢	3.75+14¢	3.80+10¢	2.30	2.50	2.65
Detroit	2.80+42¢	2.80+42¢	3.90+30¢	3.55+42¢	3.90+22½¢	3.55+36¢	3.66+34¢	3.90+44	3.835+17½¢	2.95	2.95	2.95
Kansas City	2.455	2.505	3.95	3.50	3.55	3.445	3.75	3.75+25¢	3.60+9½¢	2.43	2.43	2.505
Los Angeles	2.88+10¢	2.88+10¢	4.00+15¢	3.60+20¢	4.07½+21½¢	3.61+15¢	4.125+42½¢	4.40+44	4.10+31¢	3.13½+10¢	3.13½+10¢	3.345+10¢
Minneapolis	2.70	2.70	3.875	3.45	3.62	3.45	3.40+33¢	3.55+39¢	3.62+20¢	2.70	2.70d	2.85
New Orleans	1.80e	1.80e	3.575+7½ed	3.10d	3.40+7½ed	3.225+7½ed	3.12+5e/k	3.475+7½¢	3.50+15e/dl	2.575+7½ed	2.575+7½ed	2.575+7½ed
New York	3.30+26ec	3.30+26ec	4.80+44¢	4.40+35e/k	4.60+47e/j	4.65+37¢	4.50+62¢	3.90+1.272/R	4.50+34¢	2.85+22½¢	3.10+29½¢	3.10+29½¢
Philadelphia	R* 2.50	2.40+10¢	4.10+17¢	3.785	4.30+23¢	3.935 4.215+10e/k	4.15+15¢	4.37½+16¢	4.10+31½¢		2.57+13½¢	
Pittsburgh	2.575+20¢	2.425+20¢	4.30+20¢	3.775+20¢	4.15+20¢	3.73+20¢	3.95+20¢	4.35+32½¢	4.00+20¢	2.37+20¢	2.51+20¢	2.61+20¢
St. Louis	2.775+10¢	2.775+10¢	4.05+32½¢	3.725+10e/c	3.75+7½¢	3.825	3.90+17½¢	4.11+31¢	4.07½+20¢	2.80+12½¢	2.80+12½¢	2.80+12½¢
San Francisco	2.865+10¢	2.865+10¢	4.25+42½¢	3.55+30½¢	4.075+22½¢	3.405+10¢	3.79+63¢	4.22+29¢	4.14+34¢	2.81+20¢	2.73+20	2.89+20¢
Seattle	2.85+10¢	2.85+10¢	4.15+10¢	3.32+10¢	3.59+10¢	3.59+20¢	3.57+30¢	3.65+26¢	3.81+24¢	3.15+20¢	3.15+20¢	3.35+20¢
Montreal	1.65+4eq	1.65+4eq	2.45+5eq	2.25+5eq	2.45+5e	2.35+5e	2.45+5e	2.35+5e	2.47+5eo	1.65+4e	1.65+4e	1.65+4e
Toronto	1.80+7¢	1.80+7¢	3.00+12¢	2.80+12¢	2.85+11¢	3.05+12¢	3.00+20¢	3.30+13¢	3.20+13¢	1.90+14½¢	1.90+14½¢	1.90+14½¢

	Tractor Operators: 34-49 hp	Tractor Operators: 70-100 hp	Tractor Operators: 100 & over	Tractor scraper 15-18 cy	Power cranes & shovels: ½ cy	Power cranes & shovels: ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$2.925	$3.00	$3.00	$2.85	$3.375	$3.525	$2.85	$2.775	$1.925
Baltimore	3.65+10¢	3.65+10¢	3.65+10¢	3.65+10¢	4.05+10¢	4.05+10¢	3.65+10¢	3.25+10¢	2.25+7½¢
Birmingham	3.18C	3.18C	3.18C	3.18C	3.18C	3.18C	3.18C	2.77	2.05
Boston	3.52½+10¢	3.52½+10¢	3.52½+10¢	3.52½+10¢	3.90+10¢	3.90+10¢	3.52½+10¢	3.45+10¢	2.80+7¢
Chicago	3.50+5¢	3.65+5¢	3.30+5¢	3.30+5¢	4.10+5e/DR	4.10+5e/DR	3.50+5¢	3.40+5¢	3.70+5¢
Cincinnati	3.475+10¢	3.475+10¢	3.475+10¢	3.475+10¢	3.475+10¢	3.70+10¢	3.70+10¢	3.70+10¢	3.70+10¢
Cleveland	3.74b	3.74b	3.74b	3.74b	3.99b	3.99b	3.74b	3.615b	3.615b
Dallas	1.80 2.625	1.80 2.625	1.80 2.625	1.80 2.625	3.10A	3.10A	1.80 2.625	1.95	1.95
Denver	2.40	3.00	3.00	3.00	3.15	3.15	3.00	3.00	2.53
Detroit	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.55+36¢	3.275+15¢	2.93+34¢
Kansas City	2.75	3.20	3.20	3.20	3.445	3.445	3.20	3.20	2.55
Los Angeles	3.91+15¢	3.91+15¢	3.91+15¢	4.01+15¢	4.01+15¢	4.01+15¢	4.01+15¢	3.13+15¢	3.09+10¢
Minneapolis	3.08	3.30		3.30	3.52	3.78	3.08	2.97	2.85
New Orleans	3.225+7½ed	3.225+7½ed	3.225+7½ed	3.225+7½ed	3.225+7½ed	3.225+7½ed	3.225+7½ed	2.575+7½ed	1.90e
New York	4.025+32¢	4.025+32¢	4.025+32¢	4.15+33¢	4.90+39¢	4.90+39e/k	4.15+33¢	4.15+33¢	4.15+21¢
Philadelphia	R* 3.52+10	3.665+10	3.665+10	3.79+10	4.215+10	4.215+10	3.765+10	3.41+10	2.35
Pittsburgh	3.44+10¢	3.44+10¢	3.44+10¢	3.44+10¢	3.64+10¢	3.64+10¢	3.64+10¢	3.15+10¢	2.30+20¢
St. Louis	3.825	3.825	3.825	3.825	3.825	3.825	3.825	3.275	3.275
San Francisco	3.70+20¢	3.70+20¢	3.70+20¢	3.70+20¢	3.85+20¢	3.85+20¢	3.75+20¢	3.10+20¢	2.955+20¢
Seattle	3.56+20¢	3.56+20¢	3.56+20¢	3.56+20¢	3.93+20¢	3.93+20¢	3.65+20¢	3.29+20¢	3.05+10¢
Montreal	q 1.85+4e	2.08+5e	2.08+5e	2.08+5e	2.35+5e	2.35+5e	2.08+5e	1.95+4e	1.95+4e
Toronto	2.30+10¢	2.40+10¢	2.40+10¢	2.40+10¢	2.90+12¢	3.05+12¢	2.70+11¢	2.40+10¢	2.40+10¢

ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.897. ENR Common Average $2.61

Description of fringe benefits last appeared Feb. 26; will next appear in Sept. 17 Cost Issue. •A 1-2 drum. •B eff. 10 1 59. •C Sept. revised to 3.18. •D Sept. revised to 4.10.

DEFERRED WAGE INCREASES UNDER PRESENT CONTRACTS: 1960: a May 1; 10¢ b May 1; 12¢ k May 1; 8¢ l May 1; 10¢ m Jan. 1; 15¢ n Jul. 1; 5¢ o Jun. 30; 22½¢ s Apr. 1; 15¢ **1959:** c Dec. 1; 10¢ d Nov. 1; 10¢ e Nov. 1; 5¢.

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

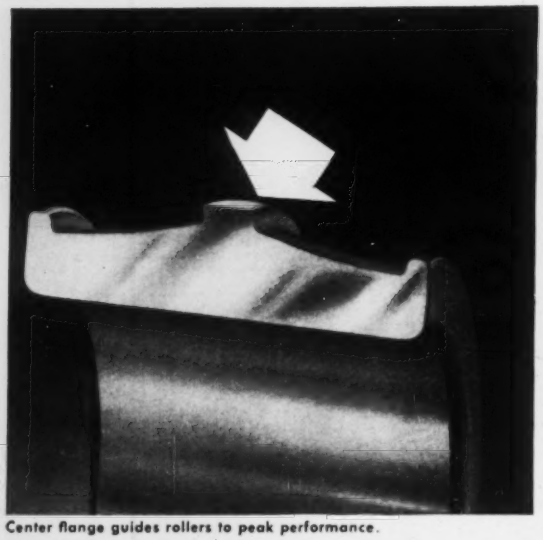
	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅝"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60# Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq ft
Atlanta	$65.00/F	$55.00/F	$42.50/F	$68.00/F	$72.00/F	$127.00/F	$75.00/F	1.55/z	$70.00/F	$2.00	$80.00/F	$4.77/q	
Baltimore	51.70	45.55	34.25	55.35	65.00	108.50	69.00	1.30/F	66.50/F	1.50/F	45.00/F	4.00/F	$33.50/F
Birmingham	68.90/H	57.00/H	47.77/H	75.00/H	67.50/H	140.50/H	83.50/H	1.40	70.00	1.60	75.00	3.77/G	
Boston	60.00/m/H	50.00/m/H	36.00/m/H	60.00/m/H	65.00/H	120.00/H	79.00/m/H	1.15/bH	75.00/H		75.00/H	5.30/zHS	53.50/qH
Chicago	67.00	54.00	45.00	62.00	87.00	123.00	87.00	1.85	80.00		63.65	5.25/y	
Cincinnati	52.50/eH	42.85/eH	33.05/eH	51.16/eH	77.00/eH	125.00/eH	72.50/eH	1.45/eH	62.50/eH	1.45/eH	62.50/eH	3.28/eJ	50.00/eJ
Cleveland	62.00/CF	56.50/CF	41.50/CF	65.00/CF	80.00/CF	129.00/CF	80.00/CF	1.35 1.50/H	72.00/H		63.75	3.50/eJ	55.00/J
Dallas	55.00	52.50	42.50	60.00	68.75	118.00	68.75	2.00	65.00	1.45	70.67	5.00/gAG	45.00
Denver	66.50/H	58.50/H	45.00/H	68.75/H	84.00/H	130.00/H	84.50	1.50/i	65.00/nb	1.75/i	65.00/n	5.25	48.65
Detroit	66.00/K	55.00/K	43.00/K	65.00/K	62.50/DK	103.50/DK	62.50/DK	1.30/i	50.00	1.95/i	88.00		
Kansas City	72.00/H	62.00/H	45.00/H		75.00/H	122.00/H	80.00/H	1.40/H	75.00/H	1.80/H	75.00/H	3.60/d	53.98
Los Angeles	Q 66.00/F	60.50/F	0.33/zF	64.50/F	75.00/F	125.00/F	80.00/F	76.00/BeF	83.00/F	1.35/e	64.00	4.40/p	7.45/V
Minneapolis	F 75.00/F	65.00/F	0.41/zL	75.00/F	95.00/F	130.00/F	78.00/F	2.25/zF	80.00/F	2.10/F	80.00/F	4.25/F	
Montreal	58.00/M	49.30/M	37.41 50/M	53.00/M	64.75/M		58.50/M	1.50/M	66.00/M	1.50/M	66.00/M	9.00/qM	56.00/M
New Orleans	57.00/H	52.00/H	45.00/H	60.00/H	67.00/H	140.00/H	80.00/H	2.00/L	70.00*				52.12/†
New York	65.00/H	55.00/H	42.50/H	65.50/H	78.00	124.00	78.00	1.55/i	68.50/i			4.38/H	40.00/eH
Philadelphia	HR* 52.50	46.00	36.00	52.00	70.00	105.00	70.00	1.05	50.00	1.40	50.00	5.25	60.00
Pittsburgh	74.00/K	65.00/K	40.00/K	63.00/K	63.00/K	103.35/K	58.10/K	1.10e/K	55.00/K	1.10e/K	55.50/K	4.20/qK	38.50/K
St. Louis	65.00/HO	55.00/HO	40.00/HO	70.00/HO	76.00/HO	120.00/HO	80.00/HO	1.35/HO	65.00/HO	2.00/PHO	74.00/HO	4.50/qHO	
San Francisco	60.00/F	49.00/F	0.36/zF	61.00/F	68.00/F	109.00/F	67.00/F	1.75/F	66.50/F	1.75/F	66.50/F	5.10	60.00/F
Seattle	66.50/K	57.65/K	51.05/K	65.00/K	74.50/K	125.00/K	73.50/K	1.15/K	58.00/K	1.90*/pK	51.00*/KA	4.25/K	46.50/EK
Toronto	58.00	50.00	38.00/L	64.50	61.50/T		60.00/T	1.65	65.50		65.50	14.75/o	46.00

•* F.o.b. warehouse. •a Semi thick. •b 30- bag. •c 3 layers of foil: $54.50. •d 40- kraft paper, 5 Msf, 100 500 rolls. •e 20- sq ft bag, 4" thick. •f Full trailer loads. •g 80- kraft paper backing 400 rolls or over. •h LCL. •i 40-. •j 80-. •k 2-in. •l 2". •m 8 to 10 ton quantities. •n Distributor's siding. •o Per Msf roll. •p 32- bag. •q 500 sf. •r 35- bag. •s 25- bag •t Flame proof $75. •v 5000 sf quantity. •x F.o.b. city. •y Sq. yd. •z 30- bag. •A Spun rock wool. •B 650 sf. •H ton. •K F.o.b. plant, freight allowed. •L CL. •M 10 Msf. •P less 2% disc, 10th. •Q 1% of 1%, 10 days. •R 2% disc, 10 days. •S 1% disc, 10 days. •T less 2% for cash. •U 5% disc, 10th mo. •M fed. tax incl. •N 1% disc, 10 days. •O add 2% sales tax. •P 50 lb. bags, •Q add 4% sales tax. •R revised. •S 45 lb. •T less 2%, 30 days. •U lots of 2606 sq. ft. •V 250 sf roll. * Philadelphia prices revised; watch for analysis.

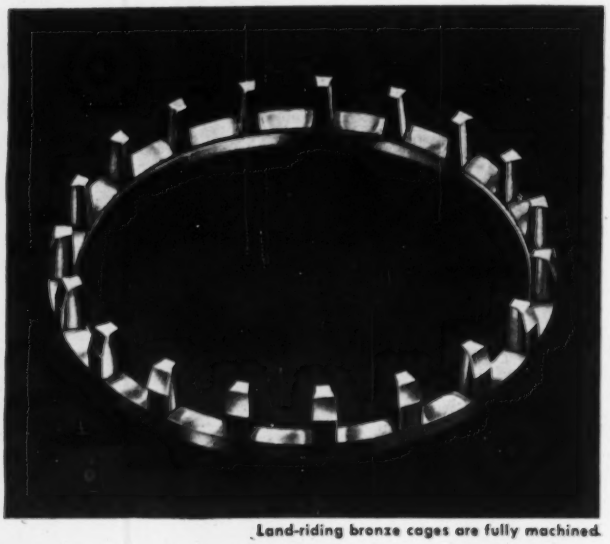
MEXICO CITY WAGES & PRICES

WAGES, av per week, 8 hr day (pesos)		Sept '59	Oct. '59
Common labor, building		87.50	87.50
	heavy const	87.50	87.50
Skilled labor,	carpenters	175.00	175.00
	bricklayers	210.00	210.00
	struct. ironworkers	280.00	280.00

MATERIALS PRICES, F.o.b. City (pesos)		Sept '59	Oct. '59
Struct. steel shapes, fob Monterey			
I-beams, 3 x 3 x 4"	per metric ton	2400.00	2400.00
Reinf. steel, corrugated rods, per ton			
¼"-½" x 11 meters		1900.00	1900.00
¾"-1" x 11 meters		1900.00	1900.00
Gravel, truckload, per cu meter			
Blue gravel		25.00	30.00
Cement, std. port. (Tolteca)		2.40	2.40
Lumber, 2"x4" 1st class pine, per M sq. ft.		2200.00	2100.00
2"x4" 2nd class pine, per M sq. ft.		1900.00	1800.00

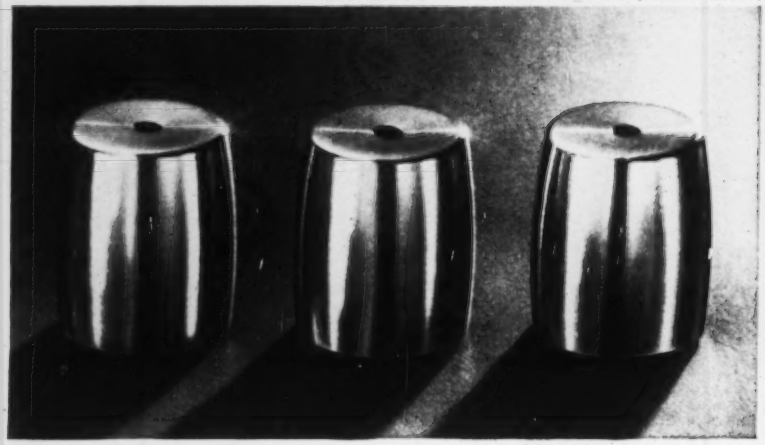


Center flange guides rollers to peak performance.



Land-riding bronze cages are fully machined.

Roller diameters are matched electronically within .0001".



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Torrington has compromised none of the operating design features of its Spherical Roller Bearing, because application experience has proved them essential to superior bearing performance.

There's no substitute for the stabilizing effect of the integral center guide flange. Torrington's asymmetrical roller seeks this flange under load. Skewing and stress concentrations are eliminated. Every roller carries its share of the load, for roller diameters are matched electronically within .0001" for even load distribution.

Rollers are precisely spaced by fully machined land-riding bronze cages that withstand even the high stresses of eccentric service. Two independent cages, one for each row, prevent roller drag and side stresses under thrust loads. Size-stabilized races prevent "growth" or change in dimension in service.

These features mean a cooler-running, longer-lasting bearing. When you buy bearings, look into *every* detail, and you'll choose Torrington. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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District Offices and Distributors in Principal Cities of United States and Canada

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- Asymmetrical rollers seek flange for positive guidance
- Electronically matched rollers
- Size-stabilized races
- Fully machined land-riding bronze cages
- Controlled internal clearances
- Even load distribution
- Inherent self-alignment
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Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ Mass., Medfield—SCHOOL—BA 11/12—Town, Junior-Senior High School, Pound St., $1,000,000. Howard L. Rich & Herman F. Tucker, 45 Newbury St., Boston, archts. CD 11/12.

Mass., Reading — SCHOOL — BA 11/16 — Town, School Dpt., 62 Oakland Rd., Junior High School, Birch Meadow Dr. and Tennyson Rd., $750,000. Plans deposit $75. Smith & Sellew, 283 Dartmouth St., Boston, archts. CD 4/14.

▲ Mass., Framingham—DORMITORY, etc.—BA 11/20—Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, E-58-2, Contr. 1, dormitory and student union, and dining hall addn., State Teachers College, $1,536,000. Plans deposit $100. W. Chester Browne & Assoc., Inc., 122 Arlington St., Boston, archt. CD 1/16/58.

▲† Conn., Groton—DWELLINGS—BA 12/22—Area Public Works Office, Room 625, Federal Office Bldg., 90 Church St., New York 7, N. Y., Capehart Housing, 500 one-family, 1 story ranch type, frame dwellings, incl. plumbing, heating, electrical system, drainage, sewage, water systems, roadwork, Spec. 21263 Rev./59. Plans deposit $200. CD 10/14.

BUILDINGS—SLC

R. I., Warwick—SCHOOL, etc.—St. Timothy's Parish, Chancery Office, Fenner St., Providence, soon lets contract elementary school and convent, $500,000. Charles A. Maguire & Assoc., Turks Head Bldg., Providence, engrs.

HEAVY CONSTRUCTION—LB & CA

RHODE ISLAND—State R. I. & Prov. Plants, Div. Purchase, State House, Providence, Bids opened 10/14.

R. I.—Fanning & Doorley Constr. Co., Inc., 274 Kinsley Ave., Providence, R. I., LB $762,524, est. $1,066,000, highway work, Mineral Springs Ave., Bid 316, RI Contr. 5917, FAP S 0308 (1) North Providence.

R. I.—M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I., LB $163,627, est. $190,000, highway work, Robert St.-exten., Bid 315, RI, Contr. 5904, FAP No. U, West Warwick. CD 10/5.

▲ CONNECTICUT—State Hy. Comr., 170 Douglas St., Hartford.

Fred Onuparik, 501 Broad St., New London, Conn., CA $1,281,286, hot b. conc. pavement 3.815 lin. ft. frontage roads, approaches, Rte. U.S. 1, incl. 3 underpasses at Vauxhall, Colman and Briggs St., Fed. Aid Proj. 95-33 (11) Proj. 94-65, New London and Waterford. Bids Aug. 31, CD 9/2, under LB.

BUILDINGS—LB & CA

E. Paul Kovacs & Co., Inc., Beaver Brook, Danbury, Conn., CA $800,000, 45,000 sq. ft. 50-lane BOWLING ALLEY, Sugar Hollow Rd., DANBURY, CONN. Jack L. Thompson, Clapboard Ridge, Danbury, Conn. Awarded Oct. 16. CD 4/2.

Rizzo Bros., Cherry Hill Road, Hamden, Conn., Owner Builds, $736,000, 40 HOUSES, Maple Lawn, Cherry Hill Road, HAMDEN, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New York—BA 11/19—State Dpt. P. Wks., State Office Bldg., Albany, four stone grains (Beach Protection) Rockaway Beach (Beach 62nd St. to Beach 70th St.), BP 59-77, Queens Co. $870,000. Plans deposit $10.

BUILDINGS—BA

▲ N. Y., New York—SCHOOL—BA 11/17—Supt. Design, Constr. & Physical Plant, at office, Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures, Junior High School 52 addn., modernization, Kelly St. and Ave. St. John, Bronx Boro. Plans deposit $25 general; $10 each, plumbing and drainage and heating and ventilating; electrical work and lighting fixtures. CD 5/16/57.

HEAVY CONSTRUCTION—LB & CA

▲ L. E. Myers Co., 53 W. Jackson St., Chicago, Ill., LB $3,088,575 (6 bidders), 345 kv transmission line from Rochester to Syracuse Substations, Monroe and Onondaga Counties, Spec. PA-9-3, Contr. AL-3, NEW YORK Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Oct. 15. CD 9/16.

▲† Atlantic Gulf & Pacific Co., 15 Park Row, New York, N. Y., CA $4,280,507, excavating Delaware River, Florence and Roebling, NEW JERSEY. U. S. Eng., 2635 Abbottsford Ave., Phila., Pa. CD 9/19/58, under Pennsylvania and New Jersey.

Verona Constr. Co., 215½ Grove Ave., Verona, N. J., CA $592,192, Contr. 2082-W, 48 in. concrete water main, Seven Locks Rd., HYATTSVILLE, MD. Washington Suburban Sanitary Comn., 4107 Hamilton St., Hyattsville, Md. Bids Oct. 5, awarded Oct. 13. CD 10/9, under LB.

BUILDINGS—LB & CA

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y., LB $1,430,000, identical bid (9 bidders) general contract PUBLIC SCHOOL 203, Springfield Blvd. between 51st and 56th Aves., Queens Boro. BAYSIDE, N. Y. Bd. Educ. of City of New York, Bureau Constr. 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 15. CD 9/21;

Mars Assocs., Inc., 271 Church St., New York 13, N. Y., LB $1,430,000 identical bid, PUBLIC SCHOOL 203, Springfield Blvd. between 51st and 56th Aves., Queens Boro (Bayside, N. Y.).

▲ Caristo Constr. Co., 26 Court St., Brooklyn 2, N. Y. LB $1,695,000 (10 bidders) general contract PUBLIC SCHOOL 155, East 117th St. between 1st and 2nd Aves., Manhattan Boro., NEW YORK, N. Y. Bd. Educ. of City of New York, Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 15. CD 9/21.

▲ Chatham Green, Inc., 5 Beekman St., New York 38, N. Y., Separate Contracts, $8,000,000, S-shaped Park Row HOUSES, St. James Pl., Park Row, Pearl St., NEW YORK, N. Y. Kelly & Gruzen, 10 Columbus Circle, New York 19, N. Y., archts. Weinberger Frieman Leichtman & Quinn, 20 Vesey St., New York 7, N. Y., structural engrs. Herman Scherr, 18 John St., New York 38, N. Y., consult. engr. CD 2/6/57, under New York City Office of Committee on Slum Clearance, as owner.

▲ Wilaka Constr. Co., Inc., 11 E. 44th St., New York, N. Y. LB $6,355,000 (9 bidders) general contract, combination bid for PUBLIC SCHOOL 155, East 117th St. between 1st and 2nd Aves., Manhattan Boro, PUBLIC SCHOOL 145, Amsterdam Ave. between West 104th and 105th Sts., Manhattan Boro., PUBLIC SCHOOL 1, East 152nd St. west of Courtlandt Ave., Bronx Boro., PUBLIC SCHOOL 203, Springfield Blvd. between 51st and 56th Aves., Queens Boro., Bayside, NEW YORK, N. Y. Bd. Educ. of City of New York, Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 15. CD 9/21.

▲ Wilaka Constr. Co., Inc., 11 E. 44th St., New York 17, N. Y. LB $1,689,000 (9 bidders) general contract PUBLIC SCHOOL 1, East 152nd St. west of Courtlandt Ave., Bronx Boro, NEW YORK, N. Y. Bd. Educ. of City of New York, Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 15. CD 9/21.

▲ Wilaka Constr. Co., Inc., 11 E. 44th St., New York 17, N. Y., LB $1,518,000 (9 bidders), general contract PUBLIC SCHOOL 145, Amsterdam Ave. between West 104th and 105th Sts., Manhattan Boro, NEW YORK, N. Y. Bd. Educ. of City of New York, Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 15. CD 9/21.

▲ Fleetfellow, Inc., East Jersey St., Elizabeth, N. J., Owner Builds, $1,750,000, 62 HOUSES, Park Ave. adjoining existing development Riverside, BERKELEY HEIGHTS, N. J. John DePalma, 635 Faitoute Ave., Roselle Park, N. J., archt.

Minda Constr. Co., Rte. 18, Metuchen, N. J., Owner Builds, $900,000, 30 HOUSES, Rosewood Dr., BERKELEY HEIGHTS, N. J.

Capri Acres, Inc. (Philip Azzolina), Fernwood Rd., Summit, N. J., Owner Builds, $450,000, 15 HOUSES, or The Felsway, NEW PROVIDENCE, N. J. Wm. Chirgotis, 80 Morris Ave., Springfield, N. J., archt.

Charles E. Brohawn, 19 Poplar St., Cambridge, Md., LB $786,564 (4 bidders), brick, steel, block and concrete GERIATRIC BLDG., Eastern Shore State Hospital, CAMBRIDGE, MD. State Dpt. P. Imprvts., 301 W. Preston St., Baltimore 1, Md. Bids Oct. 13. CD 9/29.

Victor R. Beauchamp, Inc., 431 Cedar St. N.W., Wash., D. C., CA $802,219, DORMITORY, WASH., D. C. Dunbarton College, 2935 Upton St. N.W., Wash., D. C. Bids Sept. 28, awarded Oct. 13. CD 10/2, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**Mississippi to Rockies**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

BUILDINGS—BA

Ga., Warner Robins — HOUSING — BA 11/4 — Warner Robins Housing Auth., Housing Projects, GA 160-1 and 160-2, $800,000. Plans deposit $50. Extended date. Hugh K. Marshall, 1107 W. Rugby Ave., College Park, archt. CD 9/18.

▲ Ala., Birmingham — HOSPITAL — BA 11/12 — Bd. Control, Children's Hospital, 301-S 20 St., children's hospital, Prop. A., outpatients diagnostic clinic, Prop. B. $3,000,000. Plans deposit $50. Lawrence Whitten, Brown-Marx Bldg., archt. CD 3/5/57.

BUILDINGS—SLC

Ga., Savannah—STORE—Altmeyer Estates, c/o Leo V. Berger, archt., 356 Fulton St., Brooklyn, N. Y., soon lets contract department store, $500,000.

HEAVY CONSTRUCTION—LB & CA

▲ VIRGINIA—Dpt. Hys., Room 400, Central Hy. Office Bldg., 1221 E. Broad St., Richmond. Bids opened 10/14.

Va.—Turner Bros., RFD 3, Salem, Va., LB $648,028 (7 bidders), 24 ft. b. conc., grading, drainage for connections and bridge fills for each end 5.05 mi. Rte. 220-A, Fed. Proj. F-03-3 (7), Franklin Co.

Va.—Charles W. Williams & Assocs., Inc., 2210 Maryland Ave., Baltimore, Md., LB $2,375,692 (8 bidders), grading, drainage 4 lane hy., completed service roads and connections Rte. 81, Fed. Proj. I-81-1 (13) 5, Washington Co.;

Va.—H. A. Nunn, Virginia, Va., LB $157,974 (9 bidders), grading, draining 2.43 mi. of which 0.71 mi. paving with 22 ft. b. conc. Rte. 58, State Proj. 0058-017-003, G1, B2, Pl. Fed. Proj. F 024-1 (4), Carroll Co.;

Va.—Bishop & Settle Constr. Co., Alberta, Va., LB $101,450 (10 bidders), straightening, wid'n. 1.12 mi. Hy. Rte. 3, State Proj. 0003-048-010-02, Fed. Proj. F-013-2 (8), King George Co. CD 9/22.

▲ VIRGINIA—Dpt. Hys., Room 400, Central Hy. Office Bldg., 1221 E. Broad St., Richmond. Bids opened 10/14.

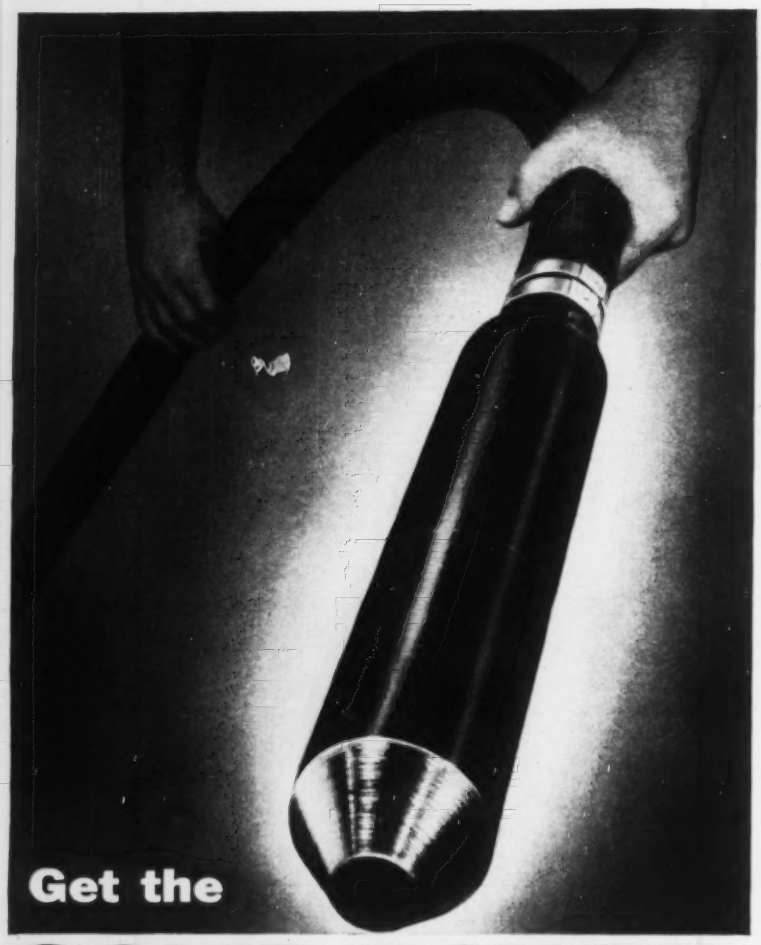
Va.—J. M. Turner & Co., Inc., 317 McClanahan St., Roanoke, Va., LB $136,705 (8 bidders), two bridges for interchange connections Rtes. 220 and 220-A, State Proj. 7220-033-039-041, Fed. Proj. F-03-3 (7), Franklin Co.;

Va.—Trotline & Brown, Inc., Crayton Rd., Asheville, N. C., LB $1,129,612 (15 bidders), 8 bridges, incl. interchange U.S. 11, twin structures over N&W RR twin interchange bridges, Rte. 658, twin structures over Rte. 808, twin bridges over Rte. 76, bridge for spur to Bristol, twin bridges over Old Dominion Rd. bridge over Beaver Creek Rte. 81, State Proj. 81-095-014, B2, B4, B5, B6, B8, B9, B30, Fed. Proj. I-IG-81-1 (13) 5, Washington Co. CD 9/22.

Gilbert Engineering Co., 638 S. Meeting St., Statesville, N. C., CA $598,489, water filtration plant addn. raw water supply lines, SHELBY, N. C. City, City Hall, Shelby, N. C. Bids Sept. 29. CD 9/2.

A. Stanley Mundy & Co., 54 Main St., Woodbridge, N. J., CA $546,760, water mains, various streets, COLUMBIA, S. C. City, City Hall, Columbia, S. C. Bids Sept. 30. CD 9/4.

FLORIDA—State Road Dpt., Holland Bldg., Tallahassee, Capeletti Bros., Inc., Box 1147, Hialeah, Fla., CA



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$754,146, 6-lane dual roadway facility, limerock, Type 1 b. conc. surf. course and binder course and concrete slab covered storm drain ditch, dual roadway concrete bridge 0.899 mi. SR 26 (36 State Proj. Job No. 87090-3504, Dade Co. Bids July 28, awarded Oct. 14. CD 7/31, under LB.

▲ **The Auchter Co.**, P. O. Box 1193, Jacksonville, Fla., LB $261,525, sewage pumping station, Huron St., Project, MES 15-10. LB $757,190 McMillan Street Sewage Pumping Station, Project MES 15-11 JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Bids Oct. 6. CD 9/2.

Brinson-Allen Constr. Co., 5013 E. Broadway Ave., Tampa, Fla., and **Hendry Corp.**, 5107 W. Shore Blvd., Tampa, Fla., CA $855,900, dredging, 3,500,000 yds. clearing and removal structures, Bird Key, SARASOTA, FLA. ..Arvida Corp., 100 Biscayne Blvd. S. Miami, Fla. CD 8/11.

BUILDINGS—LB & CA

▲ **Daniel Constr. Co., Inc.**, P.O. Box 2087, Greenville, S. C., CA Est. $5,000,000, RESEARCH LABORATORY, CHAPEL HILL, N. C. Chemstrand Corp., 350 5th Ave., New York, N. Y. CD 10/13.

Carl W. Johnson, 1900 W. Vernon Ave., Kinston, N. C., Own Forces, $750,000, 72 RESIDENCES, NEWPORT, N. C.

▲ **R. T. Burney Constr. Co., Inc.**, 3610 Oleander Dr., Wilmington, N. C., CA Est. $1,500,000, rosin, turpentine and pine oil PROCESSING PLANT, WILMINGTON, N. C. Reasor Chemical Corp., Div. Southern Naval Stores of Leach Bros., Columbia, Miss.

L. G. Funderburg, Clearwater, S. C., Day Labor, $900,000, 112 RESIDENCES, CLEARWATER, S. C.

Truesdale Constr. Co., 23 Telephone St., Sumter, S. C., Owner Builds, $500,000, 35 RESIDENCES, Pinefield Subdivision, SUMTER, S. C.

A. C. Samford, Inc., P. O. Box 1229, Albany, Ga., CA $500,000, motor HOTEL, ALBANY, GA. W. D. and Frank Jamison, 2306 S. Parkway, Memphis, Tenn.

▲ **Batson-Cook Co.**, P. O. Box 151, West Point, Ga., LB $4,606,000, BANK addn., ATLANTA, GA. Federal Reserve Bank of Atlanta, 104 Marietta St. N. W., Atlanta, Ga. Bids Sept. 23. CD 9/4.

Bernard Halpern, 2185 Verbena St. N. W., Atlanta, Ga., Day Labor, $500,000, APARTMENT, 2261 Verbena St., N. W., ATLANTA, GA.

Columbus Contg. Co., 472 Andrews Rd., Columbus, Ga., Own Forces, $600,000, 58 addnl. RESIDENCES, Fairfield Subdivision, COLUMBUS, GA.

▲ **J. A. Jones Constr. Co.**, 133 Ellis St. N. E., Atlanta, Ga., CA $1,000,000, 74 APARTMENT UNITS, N. Decatur Rd., DECATUR, GA., The Military Corp., Hurt Bldg., Atlanta, Ga.

Tennessee Valley Realty Co., 319 Jackson Bldg., Chattanooga, Tenn., Day Labor, $500,000, 50 RESIDENCES, Hillsboro Rd., ROSSVILLE, GA.

Andris Realty Co., 41 Whitaker St., Savannah, Ga., Day Labor, $750,000, Riverview Manor RESIDENTIAL Subdivision, SAVANNAH, GA.

Braun Constr. Co., 2695 Whitaker St., Savannah, Ga., LB $742,782, BANK-OFFICE, SAVANNAH, GA. First Federal Savings & Loan Assn., 30 E. Bryan, Savannah, Ga. Bids Oct. 13. CD 10/1.

▲ **Joel Homes**, 645 South Military Trail, West Palm Beach, Fla., Separate Contracts, $6,000,000, 435 RESIDENCES, near Belvedere Golf Club, WEST PALM BEACH, FLA.

▲† **V. L. Nicholson Co.**, Box 2386, Knoxville, Tenn., CA $1,419,483, CENTRAL DATA PROCESSING FACILITY O.R.G.D.P., Inv. 401-60-4A OAK RIDGE, TENN. Atomic Energy Comn., P. O. Box E, Oak Ridge, Tenn. Bids Oct. 1. Awarded Oct. 8. CD 10/13, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Wis., Milwaukee—BA 11/10—City, City Hall, high and low service pumping units and traveling crane for Howard Ave. Pumping Station. $570,000. Plans deposit $25. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs., E. A. Schmidt, city engr. CD 5/12/58.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Dpt. Bldgs., Columbus, Zone 15.

J. A. Jones Constr. Co. of Charlotte, N. C., P.O. Box 108, Berlin Heights, O., CA $3,998,137, Type T-71 and structures 3.418 mi. SR 1-2.16, ACI 90-1(21) 21(new) I-110(3)(19)(old) City of Willoughby and Village of Willoughby Hills, Proj. 502, Lake Co. Bids Sept. 29. CD 10/6, under LB.

▲ **Tousley Constr. Co., Inc.**, 925 E. St. Clair St., Indianapolis, Ind., LB $1,472,281, treatment plant and interceptor sewer addns., alterations, Contr. 59-S-31-MH, INDIANAPOLIS, IND. City, Dpt. P. Wks. & Supply, Indianapolis, Ind., Bids Oct. 6. CD 9/24;
Burk Development Corp., 3859 E. 25 St., Indianapolis, Ind., LB $313,238, 3rd extension, E. 38 St., main sewer, (Indianapolis, Ind.);
Baker-McHenry & Welsh, Inc., 421 W. 11 St., Indianapolis, Ind., LB $218,890, froth control and imprvs. for aeration tanks, Contr. 59-S-32-HS, (Indianapolis, Ind.).

Rock Road Constr. Co., 5915 N. Rogers Ave., Chicago, Ill., LB $653,119; est. $900,000, (10 bidders), No. 80.68-59-9, grading, paving Northwest Expressway, North to Armitage Aves., CHICAGO, ILL. Dpt. Pur-

(Continued on page 62)

One time-honored fact about ***LINK-BELT SPEEDER*** *shovel-cranes*

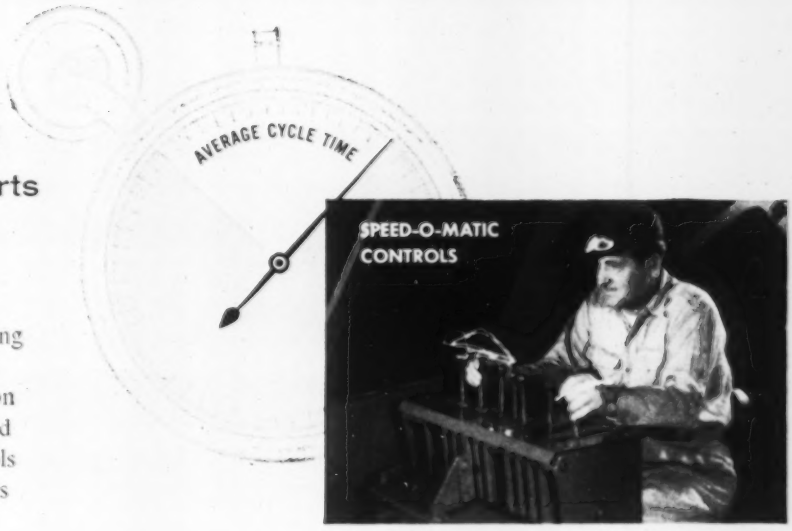
Speed-o-Matic controls save seconds on every cycle!

True power hydraulic control system converts lost time into dollars

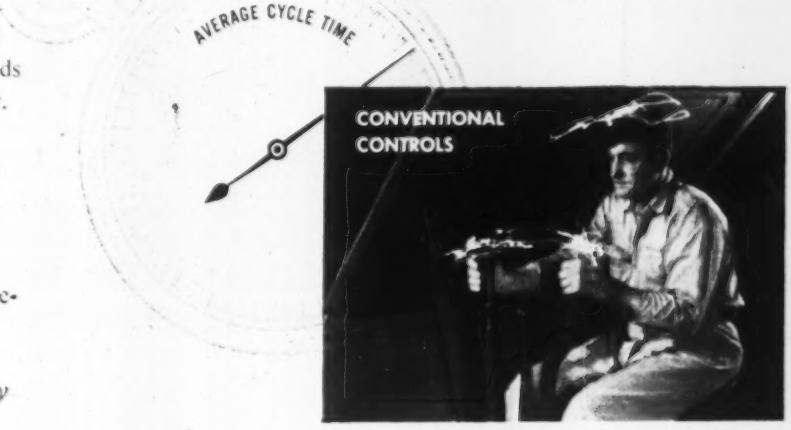
You're really on fast time when you clock Speed-o-Matic . . . actually gaining up to 25% more cycles per working shift. You make important production time savings all day long over outdated manual or booster long-throw controls that require extra linkage adjustments . . . that work against the operator, compounding end-of-shift fatigue.

A Link-Belt Speeder operator is more relaxed, more confident at the short-throw, easily accessible controls. He nudges a lever, flicks his wrist and *instantly* the powerful machine responds with oil-smooth assurance and agility. He feels it through his fingertips — working — without jump, jerk or lag. Oil under pressure does the brute work; he supplies the coordination.

Speed-o-Matic is standard on the Link-Belt Speeder line of performance-plus shovel-cranes. Find out for yourself why these machines have more profit-winning features, *why they produce more.* See your distributor, or write LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa.



TIME-LIGHT CAMERA SHOWS how Link-Belt Speeder operator saves seconds on each cycle, thanks to Speed-o-Matic power hydraulic controls. He doesn't reach, he doesn't tug. Just easy, "key board" operation. Short-throw levers boost output, conserve operator strength.

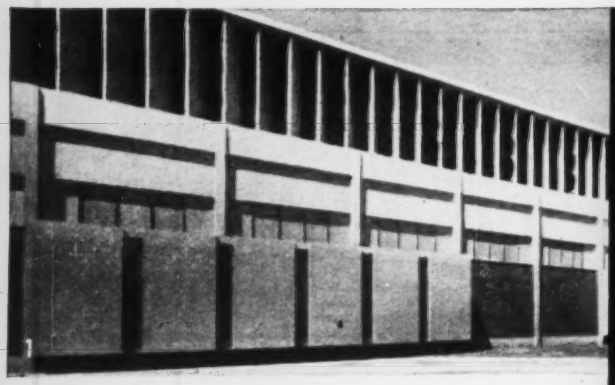


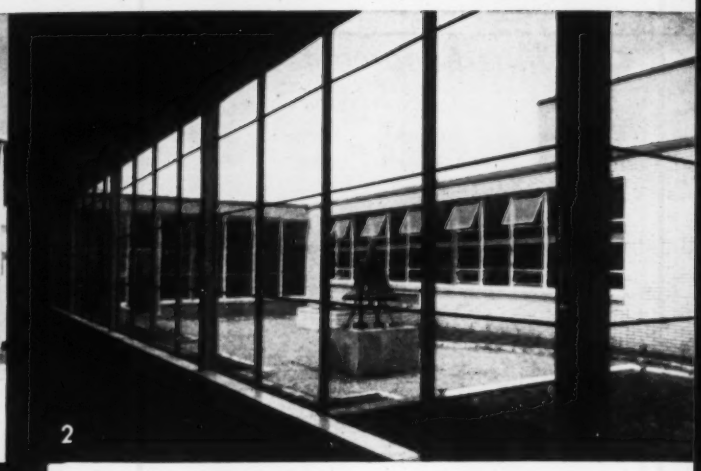
TIME-LIGHT CAMERA SHOWS operator caught in the act with conventional controls. He must move long throw levers for each machine function throughout each cycle. Through the day they rob him of valuable seconds . . . drain his vitality . . . cut his daily output.

E10-59N

LINK-BELT SPEEDER

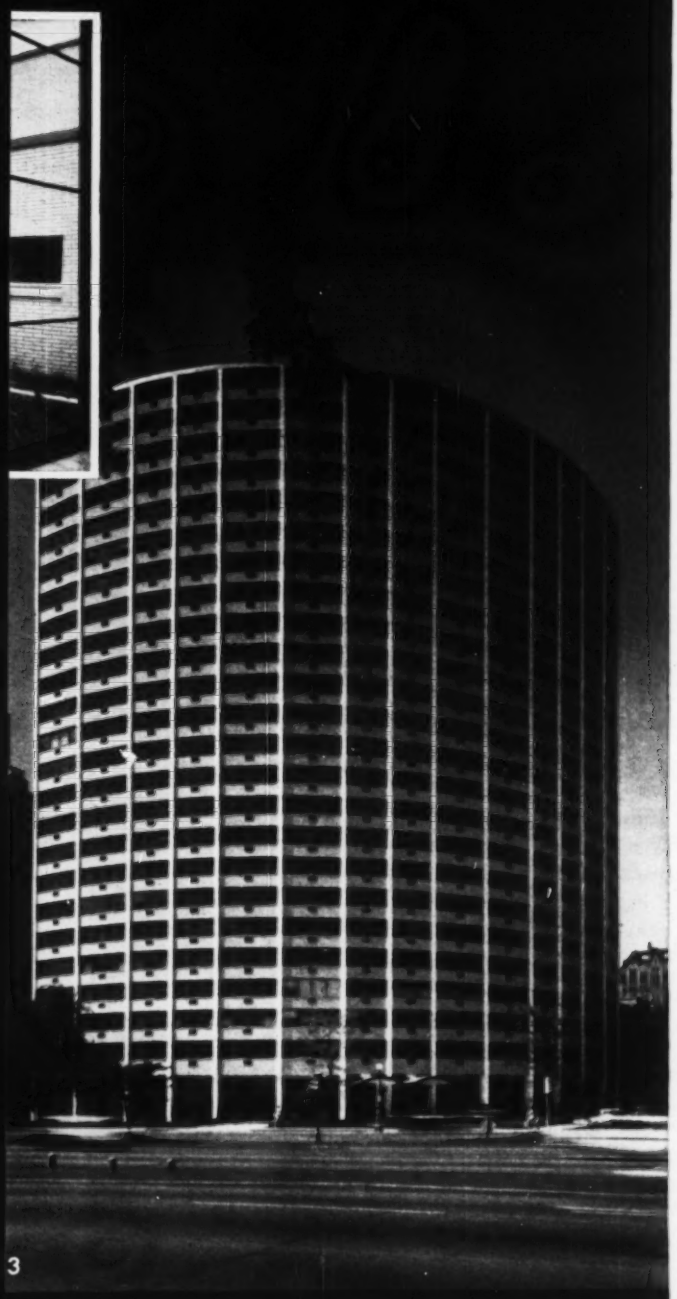
It's time to compare . . . with a Link-Belt Speeder





design ...with Truscon

Fill rooms with light. Decorate with night's reflections. • Capture the sky, the sun, the breeze, the clouds. • Frame the view and bring it inside. • Do all this with windows. And more. • Let your imagination soar . . . freely, in the knowledge that Truscon will provide the window-wings for your ideas. • Truscon makes the windows for architectural artistry. Steel and aluminum. Curtain walls, too. • *Catalogs, details, and design assistance on request.*



3

1. Truscon Intermediate Projected and Donovan Steel Windows.
   St. Catherine of Sienna Church, New Orleans, La.
   Burk, Le Breton, and Lamantia, architects.
   Lionel F. Favret, Inc., contractor.

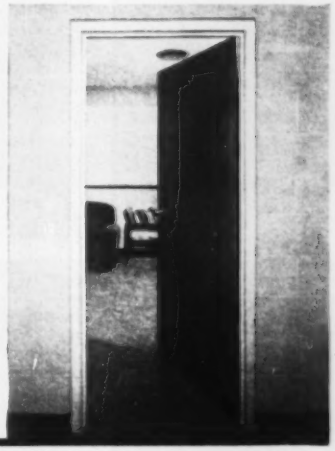
2. Truscon Commercial Projected, Architectural Projected, and Donovan Steel Windows.
   Jefferson-Morgan Junior-Senior High School, Jefferson, Pa.
   Celli and Flynn, architects.
   Graziano Construction Co., contractor.

3. Truscon Series 138 Steel Double-Hung Windows and Screens.
   1150 Lake Shore Drive Apartment, Chicago, Ill.
   Hausner and Macsai, architects.
   Crane Construction Company, contractor.

4. Truscon Donovan Steel Windows.
   Blessed Pius X Church and School Building, New Orleans, La.
   William R. Burk Associates, architects and engineers.
   Perrilliat-Rickey Construction Co., contractors.

NEW TRUSCON "O-T" STEEL JOIST IN A NEW DESIGN to fulfill your building ideas. Straight bottom end to carry to spandrels and columns. Economical extended end. Designed to balance with all other structural elements. Cold formed steel sections not only make an exceptionally strong joist, but also add a pleasing appearance. In cooperation with the Steel Joist Institute, Truscon is marketing this new joist designed to 20,000 psi. working stress. Send coupon for details.

TRUSCON SERIES 57 STEEL DOOR designed for exterior-interior use . . . for residential, commercial, and public buildings. Particularly recommended for monumental structures, including schools and hospitals. 1-¾ inches thick. Sound-deadened. Bonderized and primed with high quality light gray paint baked on at the factory, the finish is a perfect base for field painting in any color. Send coupon for types, sizes, specifications.



DESIGN MONOLITHIC MASTERPIECES with Truscon Metal Lath and plaster construction. Metal lath is easily shaped and curved in interesting contour. Ceilings and walls allow full decorating freedom. Monolithic properties mean extra fire-resistance, shock-resistance, damage-resistance, long service. Truscon makes more than 40 different metal lath and accessory items. A catalog should be in your files. Send coupon.

REPUBLIC STEEL

TRUSCON DIVISION

NAMES YOU CAN BUILD ON

REPUBLIC STEEL CORPORATION
TRUSCON DIVISION
DEPT. C-6521-A
1060 ALBERT STREET • YOUNGSTOWN 1, OHIO

Please send additional information on:

☐ Steel Windows ☐ "O-T" Steel Joist
☐ Metal Lath ☐ Series 57 Steel Doors

Name_____ Title_____

Company_____

Address_____

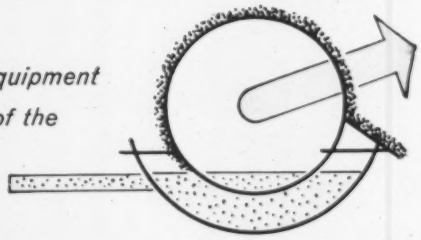
City_____ Zone_____ State_____

DORR-OLIVER POINTERS

A SERVICE TO THE PROCESSING INDUSTRIES

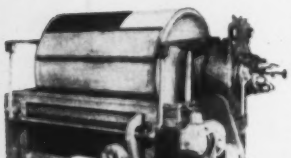
FILTRATION EXPANDS ITS SCOPE

New ideas and equipment pace needs of the processing industries



Pick any processed material, from alcohols to zirconium, and it's dollars to doughnuts that somewhere along the production line there's a filter.

Keeping on top of the many demands made on filtration equipment by modern processing often presents some tricky problems. Take corrosive applications, for instance. With rotary drum type filters, usual practice calls for stainless steel or rubber-covered construction. Capitalizing on advances in materials of construction, our engineers recently developed a filter with all essential components fabricated from tough, glass-reinforced plastics. The plastic construction not only resists corrosion, but it is also lighter and lower in cost than comparable standard machines.



This new filter has been successfully tested in handling acid leach solutions in a uranium mill and is now offered as a regular component of the Dorr-Oliver line.

This development is quoted as another example of the many contributions made by Dorr-Oliver to increase the scope and versatility of filtration equipment. Actually, it's just about impossible to think of any type of filter for any industry that isn't made by Dorr-Oliver and that hasn't been developed or improved by Dorr-Oliver engineers.

We're glad to be able to offer this wide experience and technical knowledge to help you in the solution of any filtration problems. Dorr-Oliver Incorporated, Stamford, Conn.

In the unit operation of filtration, Dorr-Oliver makes:

OLIVER® HORIZONTAL FILTERS • OLIVER CONTINUOUS DRUM FILTERS • DORRCO® INTERNAL DRUM FILTERS • OLIVER-CAMPBELL® CANE MUD FILTERS • AMERICAN® VACUUM DISC FILTERS • SWEETLAND® PRESSURE FILTERS • OLIVER PRE-COAT FILTERS • KELLY® PRESSURE FILTERS • OLIVER TOP-FEED FILTERS • OLIVER PRESSURE LEAF FILTERS • OLIVER DEWAXING FILTERS • OLIVER BLEACH WASHERS • OLIVER SAVEALLS • OLIVER DECKERS

(Continued from page 58)

chases, City, City Hall, Chicago 2, Ill. Bids Oct. 14. CD 10/5.

BUILDINGS—LB & CA

▲† Turner Constr. Co., 150 E. 42nd St., New York 17, N. Y., CA $1,485,650, LABORATORY, OFFICE, substructures for CONTROL BLDG. and SHOP and ASSEMBLY BLDG., Zero Gradiente Synchrotron, Argonne National Laboratories, LEMONT, ILL. Atomic Energy Comn., Bailey and Bluff Rds., Lemont, Ill. CD 7/28.

J. L. Wroan & Sons, Inc., 211 W. Beaufort, Normal, Ill., CA $872,831, JUNIOR HIGH SCHOOL, NORMAL, ILL. School Unit Dist. 5, Normal, Ill. Bids Sept. 9. CD 9/3.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—LB & CA

Acton Constr. Co., 1871 W. County Road C, St. Paul, Minn., CA $545,890, sewage treatment plant and two pumping stations, STILLWATER, MINN. City, City Hall, Stillwater, Minn. Bids Oct. 6. CD 10/12, under LB.

Metallic Bldg. Co., 4601 Holmes Rd., Houston, Tex., CA $559,559, steel rigid frame type 200 x 1,080 steel frame transit sheds for Wharves 21 and 22, HOUSTON, TEX. Harris County Houston Ship Channel Navigation Dist., 1519 Capitol St., Houston, Tex. Bids Sept. 23. CD 10/1, under LB.

▲† Baltimore Contractors, Inc., 711 Central Ave., Baltimore, Md., CA $1,972,625, hospital, Glasgow Air Force Base, ENG-45 164-59-51, GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Oct. 8. CD 10/14, under LB.

BUILDINGS—LB & CA

Heitzman Constr. Co., 1395 Washington St., Dubuque, Iowa, LB $709,941, (3 bidders), general contract Washington JUNIOR HIGH, Jefferson JUNIOR HIGH, and Irving ELEMENTARY SCHOOL addns., alterations, DUBUQUE, IOWA. Bd. Educ. Community School Dist., Dubuque, Iowa. Bids Sept. 22. CD 9/9.

Timmons Constr. Co., 704 N. 72nd Ave., Omaha, Neb. CA $556,935, 1 story, 40,805 sq. ft. Southwest ELEMENTARY SCHOOL, BELLEVUE, NEB. Bellevue School Dist., Bellevue, Neb. Bids Sept. 24. CD 10/6, under LB.

Schneider Constr. Co., 3004 W. Dallas St., Houston, Tex., CA $56,000, water piping sys. for outside sprinklers, HOUSTON, TEX. National Industries Corp., c/o National Industries Bldg., Dallas, Tex.

R. G. Farrell Co., Box 137, Odessa, Tex. LB $705,133 (7 bidders), 3 story, face brick, etc. MEDICAL OFFICE, Sam Houston and 4th Sts. (Job No. 581-31), ODESSA, TEX. Headlee Clinic, 413 N. Lincoln St., Odessa, Tex. Wilson, Patterson & Assocs., 601 Bailey St., Fort Worth, Tex., archts.-engrs. Orr, Strange & Inslee, 3142 Wilshire Blvd., Los Angeles, Calif. consult. archts. Bids Oct. 8. CD 9/11/59.

Braselton Constr. Co., Box 4027, Corpus Christi, Tex., LB $838,900, est. $850,000, HIGH SCHOOL, ROBSTOWN, TEX. Robstown Ind. School Dist., Robstown, Tex. CD 9/3.

▲ Martin & Kirchhof Constr. Co., 700 Lawrence, Denver, Colo., CA Approx. $3,500,000, 6 story BANK and remodeling adjacent bldg., DENVER, COLO. American National Bank, 17 and Lawrence Sts., Denver, Colo. James S. Sudler, 818 17 St., Denver, Colo., archt.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† Wash., Moses Lake — MISSILE SILOS, etc. — BA 12/20—U. S. Eng., City-County Airport, Walla Walla, 3 each of missile silos, equipment terminals and propellant terminals; 1 each of control center, antenna silo pairs and terminals, powerhouse, etc., for technical facilities, Larson Air Force Base, ENG-45-164-60-2, WS107A-2. $46,000,000. Plans deposit $200. CD 10/21.

▲† California—BA 12/1—U. S. Eng., 1209 8th St., Sacramento, levee constr., stone protection, etc., San Joaquin River between Merced River and Turolumne River, Merced and Stanislaus Counties, Spec. 2615, ENG-04-167-60-1. $1,500,000. CD 10/1.

HEAVY CONSTRUCTION—LB & CA

WASHINGTON—State Hy. Comn., Olympia, Bids opened 10/14.

Goodfellow Bros., Inc., P.O. Box 598, Wenatchee, Wash., LB $507,136, est. $665,000, (18 bidders), grading, placing riprap, surf. bit. road mix and signing 3.494 mi. Secondary St. Hy. 10-D, County Rd. No. 902 to Alwil Fruit Orchard, Douglas Co. CD 9/28.

Mike Ramljak Co., 3001 Worthen Ave., Los Angeles, Calif., CA $541,407, install sewer, Westland Ave. and Lull St. Sewer Dist., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Sept. 2, awarded Oct. 14. CD 4/8/55.

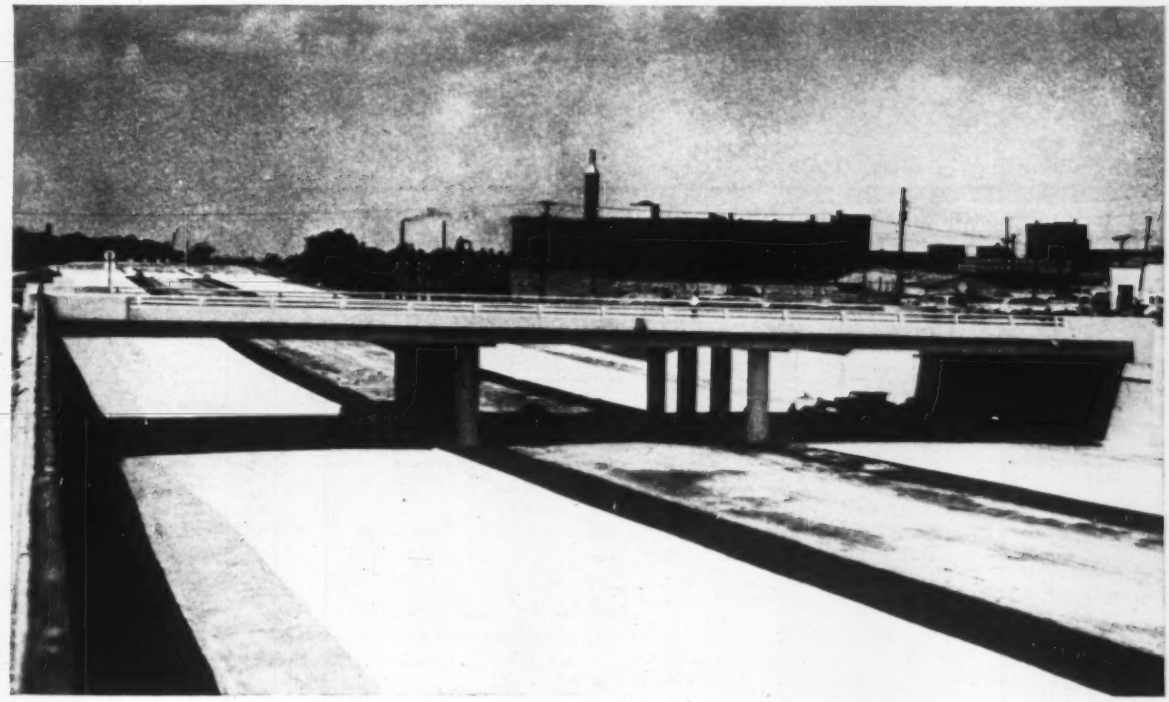
BUILDINGS—LB & CA

Murray Shiff Constr. Co., 302 S. Plumer Ave., Tucson, Ariz., CA $700,000, 74 unit El Dorado MOTEL, N. Grand Ave., NOGALES, ARIZ. El Dorado Motel Corp., Nogales, Ariz. Friedman & Jobusch, 2233 E. Broadway, Tucson, Ariz., archts. Awarded Oct. 8.

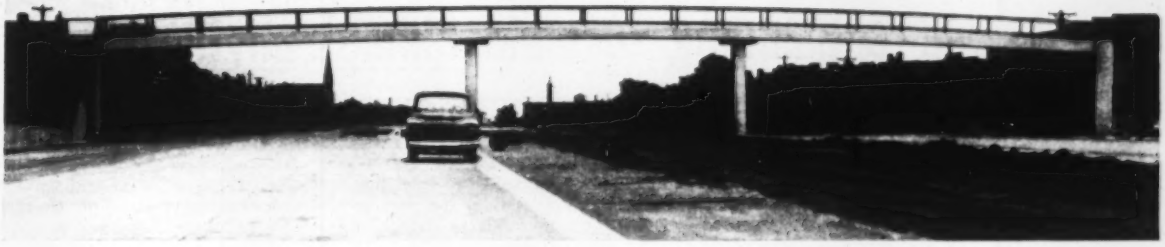
Packer Constr. Co., 3620 W. Clarendon, Phoenix, Ariz., LB $963,660, est. $810,000, (7 bidders), 1 story, brick, HEALTH DPT. BLDG., 18 St., Roosevelt, 19 St. and Garfield, PHOENIX, ARIZ. Maricopa Co., Phoenix, Ariz. Bids Oct. 13.

(Continued on page 65)

Modern Simplicity in
Reinforced CONCRETE



Continuous reinforced concrete void slab
St. Louis Avenue Underpass, Mark Twain Expressway, St. Louis, Missouri
Project I-70-5 (23) 242
Contractor: Fred Weber Contractor, Inc.

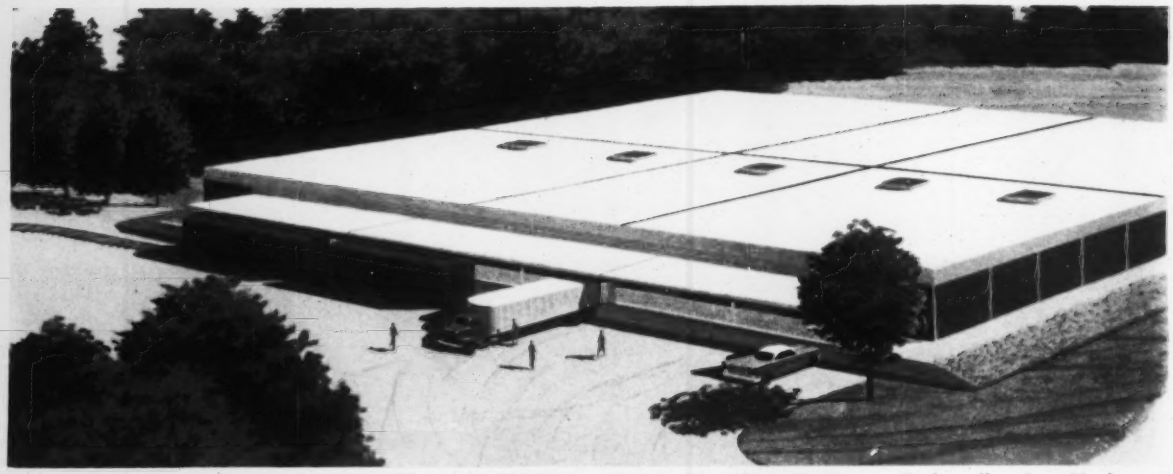


Reinforced concrete pedestrian crosswalk.

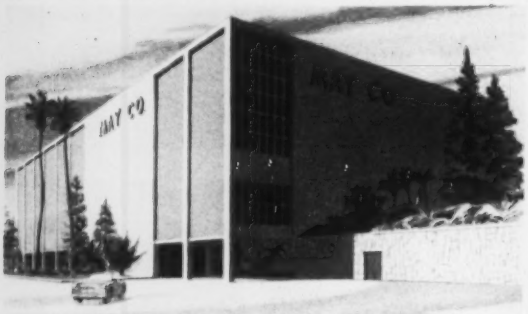
Throughout the vast network of new expressway systems under construction, highway engineers are utilizing reinforced concrete to enhance roadway areas with structures of modern simplicity. Whether you are designing an underpass, bridge, or a complex traffic interchange, you will find reinforced concrete the logical, economical solution. It is lower in first cost, requires less maintenance, and its unusual flexibility offers greater design freedom. In addition, all necessary materials and labor are readily available. Your project starts on time—finishes on schedule.

CONCRETE REINFORCING STEEL INSTITUTE
C.R.S.I.
FOUNDED 1924

Concrete Reinforcing Steel Institute
38 South Dearborn Street
Chicago 3, Illinois



PHILIP MORRIS WAREHOUSE, RICHMOND, VIRGINIA: Architect H. C. Baskerville states as the reason for choosing prestressed concrete: "After comparison of a number of framing systems, prestressed proved to be the most economical." Architects & Consulting Engineers: Baskervill & Son, Hankins & Anderson, Richmond, Virginia; Architect Consultant to the Owner: Ulrich Franzen, A.I.A., New York, N. Y.; Prestressed Concrete Fabricator: **CONCRETE STRUCTURES, INC., Richmond, Virginia.**



MAY COMPANY SHOPPING CENTER, WEST COVINA: Rockwin Prestressed Concrete Corporation, states, among other reasons for the choice of this method for this $12,000,000 development: ". . . long spans with minimum intermediate columns permitting maximum unobstructed areas . . . low cost and elimination of maintenance." Architect Engineer: A. C. Martin & Associates, Los Angeles; Contractor: T-S Construction Engineers, Inc., Los Angeles; Prestressed Concrete Manufacturer: **ROCKWIN PRESTRESSED CONCRETE CORP., Santa Fe Springs, Calif.**

MAYFLOWER MOTEL, ATLANTIC CITY: Architect S. L. Malkind states: "In addition to being 25% cheaper than comparative materials, the happy union of prestressed concrete girders and floor beams and concrete columns provides a perfect foil for architectural decoration." This three-tiered motel was designed and built, from ground-breaking to opening, in five months. Architect: Samuel Lewis Malkind, New York, N. Y.; Consulting Engineer: Stresscon Associates, Newark, N. J.; Contractor: Ramat Construction Company, Spring Valley, N. Y.; Fabricator of prestressed elements: **ATLANTIC PRESTRESSED CONCRETE COMPANY, Subsidiary of Warner Company, Trenton, N. J.**

If you're planning to build <u>almost</u> <u>anything</u>

<u>First</u> consider the benefits of prestressed concrete construction

ECONOMY • DURABILITY • FIREPROOF • MAINTENANCE-FREE DESIGN FLEXIBILITY • ARCHITECTURALLY PLEASING • EASY, FAST ERECTION • PLANT-CONTROLLED QUALITY • AVAILABLE EVERYWHERE, <u>NOW</u> • LONG SPANS, BIG BAYS • LOW INSURANCE

Given here are some current examples of what is being done with prestressed concrete throughout the country. In each case you'll find at least one of the above listed benefits given as the reason for the choice of this method over all types of construction.

In 1948 Roebling placed on the market the first wire and strand made specifically for the purpose of prestressing concrete. Since that time, prestressed concrete construction justifiably has enjoyed an ever-increasing acceptance – for all types of structures – by architects, engineers, contractors, builders and *by the owners and managers who pay for them.*

John A. Roebling's Sons Corporation not only has played a major role in the development and promotion of prestressed concrete, manufacturing the finest wire and strand available, but has compiled a wealth of data on design methods and tensioning details. This knowledge and experience, gained through years of research and practice, is offered to you – whether a mildly interested observer or one intent upon taking immediate advantage of all that prestressed concrete has to offer. We suggest you ask your nearby prestressed concrete fabricator for details or write to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

CONSULT ROEBLING . . . First in the U. S. with prestressing and tensioning elements

ROEBLING

Branch Offices in Principal Cities

Subsidiary of The Colorado Fuel and Iron Corporation

(Continued from page 62)

Riley Pleas, Inc., 522 19 Ave. N., Seattle, Wash., LB $500,656, (8 bidders), general contract remodel and enlarge 39,000 sq. ft. Lowell ELEMENTARY SCHOOL, incl. 2 wings, SEATTLE, WASH. School Dist. No. 1, 815 4 Ave. N., Seattle, Wash. Bids Oct. 14. CD 9/23.

▲ Trousdale Constr. Co., 650 N. Sepulveda Blvd., Los Angeles, Calif., Owner Builds, $1,353,000, 123 DWELLINGS, Benbow St., Gramont Ave., Lyman Ave., Brookport St., Tract 24902, COVINA, CALIF.

J. Ralph Wisehan, 5831 Corral Way, La Jolla, Calif., CA $538,920, 45 DWELLINGS, Arlene St., Arlene Pl., Winthrop St., LA JOLLA, CALIF. Wisehan Development Co., 5831 Corral Way, La Jolla, Calif.

▲ Secrest & Fish, 1909 West Whittier Blvd., Whittier, Calif., LB $1,141,517, (13 bidders), Osteopathic HOSPITAL ADDNS., LONG BEACH, CALIF. City, City Hall, Long Beach, Calif. Bids Oct. 15. CD 9/8.

▲ Shelton L. Pollack, 5880 West Pico Blvd., Los Angeles, Calif., LB $1,660,000 (17 bidders), CENTRAL HEATING and REFRIGERATION PLANT with LAUNDRY BLDG. Harbor General Hospital, Torrance, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. M. A. Nishkian & Co., 3754 Long Beach Blvd., Long Beach, Calif., engrs. Bids Oct. 14. CD 8/28.

▲ Trepte Constr. Co., Inc., 1402 Murray Canyon Rd., San Diego, Calif., LB $1,195,000, (7 bidders), general constr. 4 story, 3,700 sq. ft. bsmnt., 91,350 sq. ft. INDUSTRIAL ARTS ADDN., San Diego State College, W.O. 4160GC-9, SAN DIEGO, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Oct. 14. CD 9/11.

CANADA

HEAVY CONSTRUCTION—BA

▲ Saskatchewan—BA 12:15—Saskatchewan Power Corp., 1739 Cornwall St., Regina, earth fill dam, concrete spillway, power canal, appurtenant works, Squaw Rapids hydro electric power development, 30 mi. northeast of Carrot River, $6,000,000. Plans deposit $100. Extended date. Crippen Wright Engineering Ltd., 207 W. Hastings St., Vancouver, B. C., engrs. CD 9/8.

HEAVY CONSTRUCTION—LB & CA

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria. Bids opened 9/29.

Merit Constr. Co., Kamloops, B. C., LB $555,446, reconstr. Kanaka Bar-Siska Creek section Trans-Canada Hy., Yale Electoral Dist. CD 9/16.

▲ Ellis-Don Ltd., Box 852, London, Ont., CA $1,062,445, ramp parking station, market area bounded by James, Merrick and MacNab St. and Market Sq., HAMILTON, ONT. Parking Authority of City of Hamilton, Rm. 620, Lister Block, 42 James St. N., Hamilton, Ont. Bids Sept. 4, awarded Oct. 9. CD 9/29, under LB.

▲ Dominion Bridge Co. Ltd., Lachine, Que., CA $5,907,000, superstructure, Section 6, Champlain Bridge over Nun's Island, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids Aug. 13, awarded Oct. 13. CD 9/15, under LB.

BUILDINGS—LB & CA

Bird Constr. Co. Ltd., 1427 19th Ave. SE, Calgary, Alta., CA $516,227, steel, concrete CLUB, incl. lounge, swimming pool, curling rink, skating rink, badminton and bowling sections, CALGARY, ALTA. Calgary Winter Club, Calgary, Alta. A. C. Milroy & Assocs., Ltd., 122 17th Ave. SE, Calgary, Alta., engrs. Awarded Oct. 7.

Commonwealth Constr. Co. Ltd., 700 Taylor St., Vancouver, B. C., LB $611,420, 6 story, concrete, steel CAR PARKING STRUCTURE, 9th Ave. and Centre St. SW, CALGARY, ALTA. City, City Hall, Calgary, Alta. Strong, Lamb & Nelson Ltd., 504 4th St. SE, Calgary, Alta., engrs. CD 4/12/51.

Bennett & White (Alta.) Ltd., 10503 82nd St., Edmonton, Alta., CA $888,864, rein.-con. TRANSIT SYS. GARAGE, EDMONTON, ALTA. City, City Hall, Edmonton, Alta. Bids Sept. 21, awarded Oct. 8. CD 9/10.

▲ Piggott Constr. Ltd., 1250 Bay St., Toronto, Ont., CA $1,749,000, 5 story, 56 x 170 ft., rein.-con. HOSPITAL WING, 4 story, 33 x 46 ft. extension, 1 story laboratory and supply room, etc., PETERBOROUGH, ONT. Peterborough Civic Hospital Bd., Peterborough, Ont. Bids Sept. 18. CD 8/26.

▲ Barnabe & Fils Ltd., 1205 Second Ave., Quebec City, Que., CA $1,129,927, 3 story, bsmnt., 129 x 168 ft. SECONDARY SCHOOL, 3 story, bsmnt., L-shaped, 79 x 71 x 32 ft., rein.-con. frame, brick RESIDENCE, QUEBEC CITY, QUE. LaCommission Scolaire Catholiques de Quebec, 898 Richelieu St., Quebec City, Que. Leo Trucotte, 466 DeLa Couronne St., Quebec City, Que., archt. Andre Paquet, 868 St. Jean St., Quebec City, Que., engr. Awarded Oct. 9.

▲ Poole Constr. Co. Ltd., Hamilton and 8th Sts., Regina, Sask., CA $1,579,856, 2 story, steel, concrete law courts bldg., south side Victory Ave. between Smith and McIntyre Sts., REGINA, SASK. Sask. Govt., Parliament Bldgs., Regina, Sask. Portnall & Grolle, Bank of Commerce Bldg., Regina, Sask., archts. Awarded Oct. 8. CD 9/26/57.

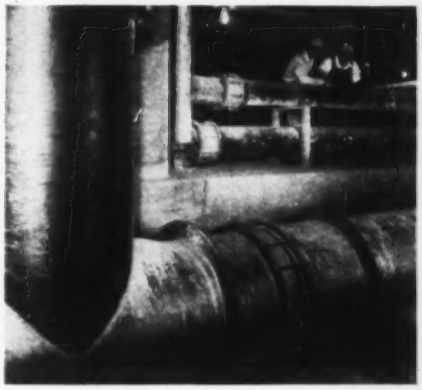
PUERTO RICO

BUILDINGS—LB & CA

▲ Samford Overseas, Inc., Box 1229, Albany, Ga., U.S.A., LB $1,387,842, 100 bed CANCER HOSPITAL.

(Continued on page 68)

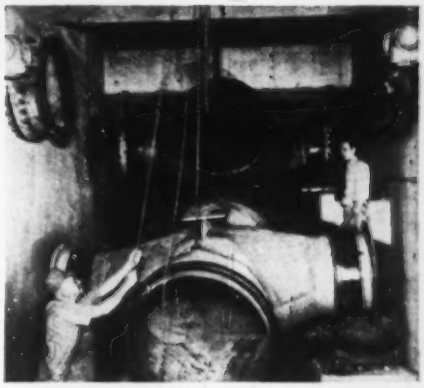
Joining pipe the Dresser way...



Always the easy way...

The 8-inch, 10-inch and 30-inch Dresser-Coupled lines illustrated here are part of the system used in servicing the Clague Road's advanced rapid-sand type filters.

often the only way!



This battery of steel crosses is in the new Clague Road Filtration Plant, designed by Havens and Emerson, Cleveland, Ohio. The Plant will carry a normal flow of 50-million gpd. Contractor: Hunkin-Conkey Construction Company.

Dresser® Couplings provide the essential leeway for bolting up cross flanges to valves in tight spots. They'll take deviation caused by settling concrete and remain bottle-tight . . . permanently! Dresser's vibration-proof properties protect valves and other expensive equipment, and protect the pipelines, too. With a Dresser Coupling, two man-minutes per bolt gives you a permanent, leak-proof joint that absorbs expansion-contraction movement, keeps maintenance problems to a minimum, and makes repairs easier if and when they do become necessary.

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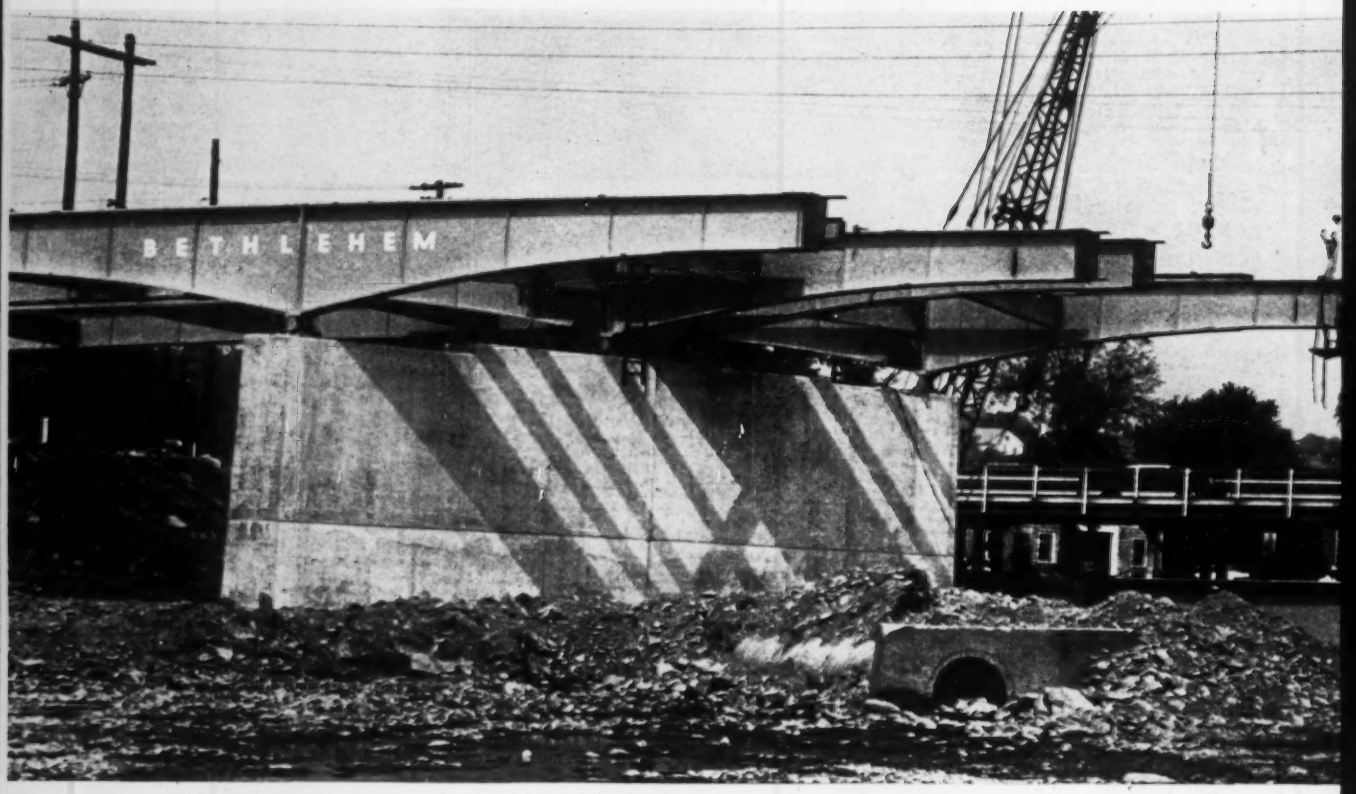

...and the superstructure went up in just

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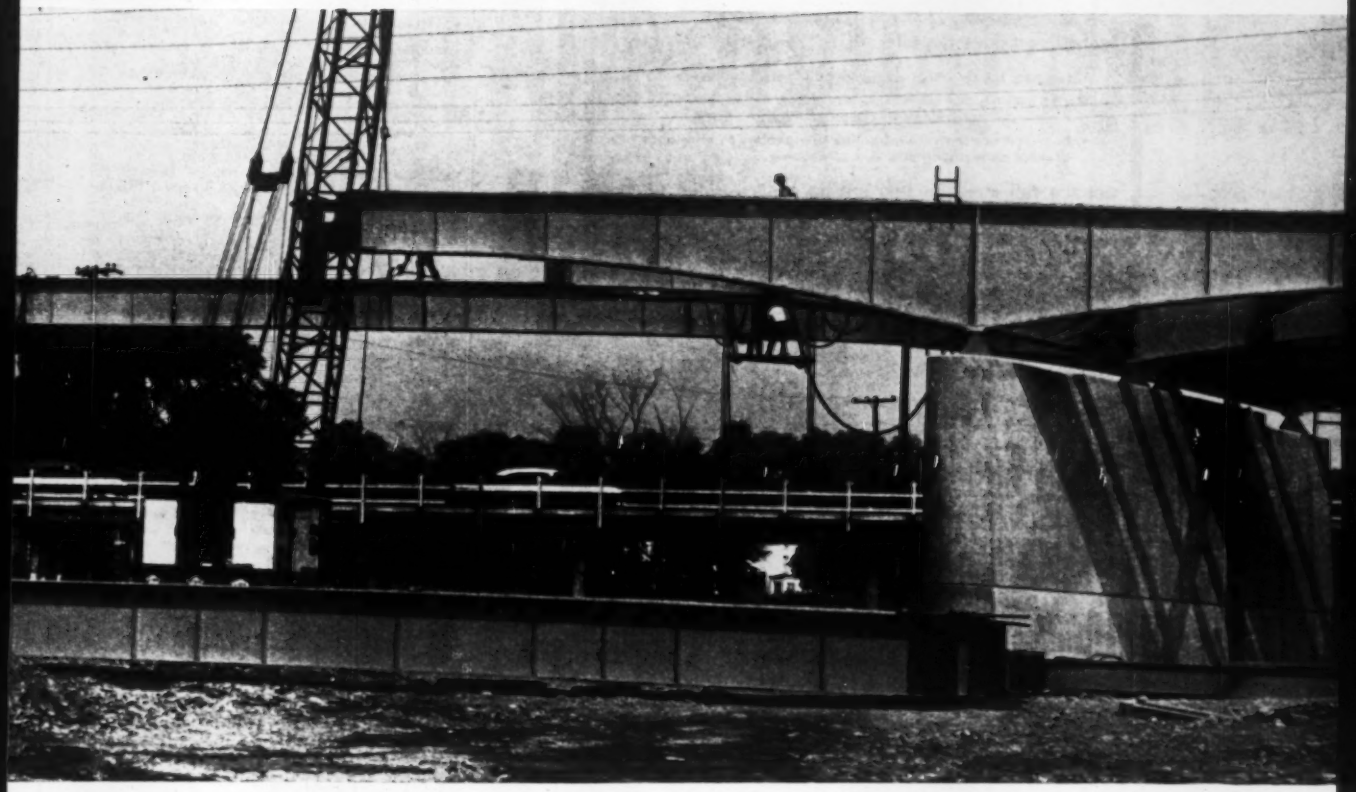
NOVEMBER 21, 1958—Pennsylvania Department of Highways accepted bids on a 350-ft-long, 4-lane dual highway bridge over Brodhead Creek between the boroughs of Stroudsburg and East Stroudsburg. The Department of Highways designed the bridge around the use of a competitive material, with an alternate for structural steel designs by the contractors, subject to approval by the Department of Highways.

Contract awarded to J. Richard Nissley, Inc., whose low bid is based on a superstructure bid of $300,000 for structural steel design by Bethlehem Steel. The only bid based on a design using competitive material was $402,000 for the superstructure. Steel design saved $102,000!

$102,000

The first steel was placed on June 3.



six working days!

Closing the Brodhead Creek bridge on June 10. The center girders measure 67 ft long and weigh 15 tons each. The main span is 150 ft; the two side spans 120 ft each. The girders are of welded construction, connected in the field with high-strength structural bolts. Total tonnage: 630 tons.

APRIL 4, 1959—Fabricating operations began at Bethlehem's Pottstown Works.

JUNE 1, 1959—First steel members shipped to the bridge site.

JUNE 3, 1959—Steel erection began.

JUNE 10, 1959—Closing members placed in 6 days!

JUNE 12, 1959—High-strength bolting operations completed. Bethlehem crew loaded out; general contractor took over.

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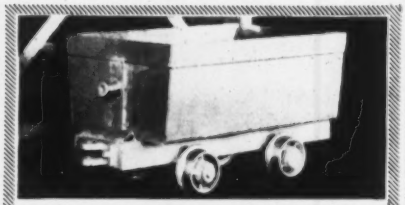

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Lancaster, Penna.

(Continued from page 65)

RIO PIEDRAS, PUERTO RICO. Puerto Rico Anti-Cancer League, 229 Parque St., San Juan, Puerto Rico. Joaquin Rodriquez Benitez, 800 Labra St., San Juan, Puerto Rico, archt. Bids Oct. 9.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Alaska, Anchorage**—City, City Hall, voted bonds Oct. 6, water sys. exten. into new areas $1,000,000. CD 9/1.

Ill., **Rantoul**—Village, Village Hall, water treatment plant enlargement with auxiliaries, appurtenances, $900,000. C-S Engineering Co., Inc., P.O. Box 366, and E. Grove St., Rantoul, Ill., and United Mine Workers Bldg., Springfield, consult. engr. Bids in 1960. CD 3/25.

▲ Md., **Hyattsville** — Washington Suburban Sanitary Comn., Hamilton St.,
water distr. system, Wisconsin Ave. to Brookeville Rd. and 10 m.g. reservoir, Bethesda, $786,600.
water distr. system Walker Mill Rd. to Camp Springs and 1 m.g. storage at Forestville, elevated storage tank, Camp Springs, $619,800.
water distr. system Henson Creek and Indian Head Highway from St. Barnabas reservoir to existing main in Indian Head Highway to Livingston Rd. and to Piscataway Creek, Forest Heights, $852,400.
water distr. system Glenn Dale Rd. to Central Ave., incl. 5 m.g.d. pump at Hill Station Greenbelt, $1,915,500.
water distr. system Good Luck Rd. to Lottsford Branch from 42 in. supply line to Folly Branch from Folly Branch to Defense Highway from Defense Highway to WSSD boundary, Lanham, $658,800.

▲ **N. M., Albuquerque**—City, City Hall, voted $9,300,000 bonds Oct. 6, water sys. CD 8/31.

▲ **N. M., Gallup**—City, City Hall, water facilities, P-N. Mex-3006, $2,458,316, Gordon Herkenhoff & Assoc., 302 8 St., N.W., Albuquerque, consult. engrs.

▲ **Okla., Elk City**—City, City Hall, voted Bonds Oct. 6, water main extensions, $1,200,000. Alexander Engineering Co., 3912 N. Meridian, Oklahoma City, consult. engr. CD 9/30.

▲ **Utah, Ogden**—City, City-Co. Bldg., 14,000 acre ft. of water, Magpie Dam, for South Fork Canyon, $1,000,000.

SEWERS, WASTE DISPOSAL

▲ **Alaska, Anchorage**—City, City Hall, voted bonds Oct. 6, sanitary sewers. $2,000,000. CD 9/1.

▲ **Kan., Leavenworth**—City, City Hall, sewage treatment plant, incl. 2 pump stations, interceptor sewer, $1,000,000. Truman Schlup, 1401 Fairfax Trafficway, Kansas City, Kan., engr.

▲ Md., **Hyattsville**—Washington Suburban Sanitary Comn., Hamilton St.,
extension of Anacostia Main outfall sewer to connect with District of Columbia System, Anacostia, $2,422,000.
Paint Branch Sewer, from Hollywood Branch sewer to 3,800 ft. north of Fairland Rd. to 1,500 ft. north of Briggs Chaney Rd., Spencerville Basin, Burtonsville Basin, Burtonsville, $677,800.
Rock Creek Interceptor to Gaithersburg, Crabbs Br. to Redland R. Contour Sewer, Mill Creek Sewer from Redland Rd. to Gaithersburg, Muddy Branch Force Main, Muddy Branch Gravity Sewer, Gaithersburg, $739,600.
North Branch Rock Creek, Rock Creek to 3,000 ft. upstream from Gaithersburg Rd. to 9,800 ft. upstream from Gaithersburg Rd. to 2,400 ft. upstream from Emory Lane to 9,000 ft. upstream from Bowie Mill Rd., Gaithersburg, $626,100.
Indian Creek Sewer from Branchville Rd. to Old Baltimore Pike and Greenbelt Sewer, from Old Baltimore Pike and Greenbelt Sewer to Baltimore-Washington Blvd. Greenbelt, $650,800.
Broad Creek sewer, pumping station and force main Lanham, $1,107,200.
Rock Creek Relief Sewer D. C. to Wildwood Manor, Wildwood Manor to Joseph Mill Branch, Joseph's Mill Branch to Turkey Branch, Turkey Branch to Viers Mill Rd., Rockville, $2,478,300.
Northwest Branch sewer from 2,300 ft. north of Glenmont Rd. to 6,500 ft. north of Glenmont Rd. to Bonifant Rd. to 5,500 ft. north of Bonifant Rd. to 1,000 ft. south of Layhill Rd. on western arm and 5,000 ft. south of Norwood Rd. on eastern arm to 1,300 ft. north of Norwood Rd. on western arm and 800 ft. north of Ednor Rd. on eastern arm, Wheaton, $746,800.
Western Branch of the Patuxent River, from sewage treatment plant to Southwest Branch and Outfall sewage treatment plant plus sewer from Southwest Branch to Folly Branch and Southwest Branch upstream from Western Branch, sewage treatment plant plus Bald Hill Sewer, Folly Branch Sewer, Lottsford Branch sewer and Northwest Branch sewer, Prince Georges Co., $6,595,400.

▲ Minn., **St. Paul**—City, City Hall, St. Anthony Park Relief Sewer, $1,331,220, W. Butler Co., 1330 Minnesota Bldg., consult. engr.; sanitary interceptor sewer along Pt. Douglas Rd., $1,126,400, E. V. Avery, city engr. Constr. 1960. CD 11/9/53.

▲ **N. J., Secaucus**—Town, Town Hall, plans by Barnett D. Singer, 549 Broadway, Bayonne, sewerage sys. and treatment plant, $3,000,000. Homer O. Smith, Bank Bldg., engr. CD 4/4/56.

(Continued on page 70)

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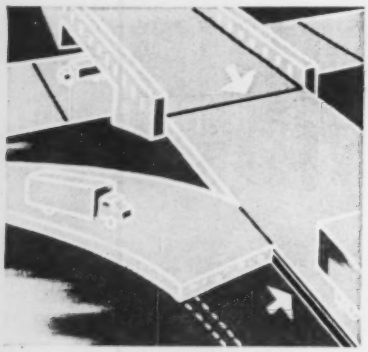
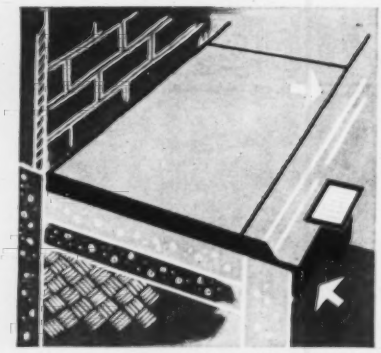
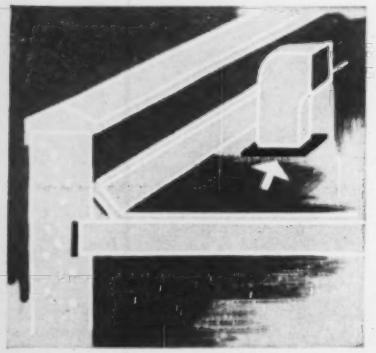


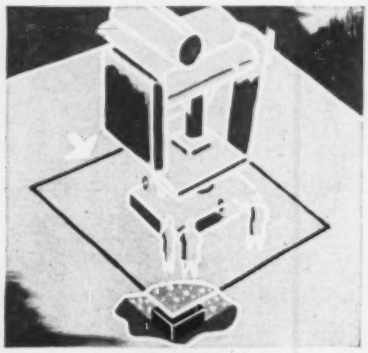
1. Concrete Expansion Joint Filler: for bridge approaches, airports, intersections, abutments, highways, dams.



2. Concrete Expansion Joint Filler: for walks, curbs, gutters, streets, driveways, slab floors.



3. Roof Deck Expansion Joint: forms tight, yet resilient bond at all junctures with gypsum or concrete deck.



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(Continued from page 68)

▲ N. M., Albuquerque—City, City Hall, voted bonds Oct. 6, sanitary sewers, $6,100,000, storm sewers, $3,700,000. CD 8/52.

BRIDGES

▲ MAINE—State of Maine, Augusta, voted $3,900,000 bonds Oct. 12, Passagassawaukeeg River Bridge at Belfast. CD 9/2.

STREETS AND ROADS

▲† ALASKA—Bureau P. Rds. for State Dpt. P. Wks., Juneau,
45 mi., base course for Railbelt Rd. from Ester to Tanana River, $1,000,000.
grade, drain 17 mi. Fairbanks-McKinley Park Rd. to Clear, $985,000.
grade, drain, bridge constr. 43 mi. Railbelt Hy. Willow To Talkeetna, $2,200,000. Constr. 1960.

▲ Alaska, Anchorage—City, City Hall, voted bonds street paving, $1,500,000. CD 10/21/52.

▲ Ind., Gary—City, City Hall, paving, extend Tennessee St. from Mason to 15 Aves. $1,250,000. Harold Zaeig, c/o owner, engr.

▲ MAINE—State of Maine, Augusta, voted $13,000,000 bonds Oct. 12, state highways. CD 9/2.

▲ N. M., Albuquerque—City, City Hall, voted bonds, street imprvs. $1,800,000. CD 9/20/55.

▲ NEW YORK—State Dpt. P. Wks., State Office Bldg., Albany, Zone 1,
Albany Co.—Delmar Bypass, 7 mi. controlled-access expressway which would exten. from Rte. 9W westward to Rte. 85 skirting Delmar, Elsmere and Slingerlands, FAI Proj. $4,000,000.

▲ NEW YORK—State Dpt. P. Wks., State Office Bldg., Albany, Zone 1,
Nassau Co.—reconstr. approx. 4.8 mi. Rte. 27 (Sunrise Hy. Extens.) from Ungua Rd., Massapequa Park, Nassau Co. eastward to just west of Rte. 109, West Babylon, Suffolk Co. FAI Proj. $5,000,000.

▲ PENNSYLVANIA—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,
Bucks Co.—relocation 2.96 mi. U.S. Rte. 1, Morrisville-Fallsington, $3,000,000.
Mifflin Co.—Lewistown by-pass for Rte. 22, 1.8 mi. between east end of Kishacoquillas Creek Bridge and point near Jacks Creek, Lewistown, $750,000. Gwin Engineers, Inc., Altoona, consult. engr. CD 12/21/52.
Washington Co.—imprv. U.S. Rte. 22 between W. Va. State line and the Allegheny Co. line 12 mi., $5,400,000. Westmoreland Engineers, Inc., Monessen, consult. engrs. W. R. Froehlich, c/o owner, act. ch. engr.

▲ Va., Portsmouth—City, City Hall, highway widening: Elm. Ave. (Rt. 17) from Geo. Washington Hy. to Jefferson St. and from County to High St. and (2) Air Line Blvd. from city limits to High St. $1,000,000. Bids in November. CD 10/2.

EARTHWORK, WATERWAYS

▲† Alabama—Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn., locks at Wheeler Dam, $16,000,000 ($200,000 appropriated for planning). CD 1/28.

▲† Alabama—U. S. Eng., 2301 Grant St., Mobile, flood control Montgomery Flood Control Project on Alabama River $1,400,000 ($61,000 appropriated for planning).

▲ Colorado—Boettcher & Co., 828 17 St., Denver, Colo., and John P. Elliott, First National Bank Bldg., Denver, consulting engineer, are joined by the City of Colorado Springs and City of Aurora for construction Homestake Tunnel Project. Waiting Supreme Court decision and HHFA loan. Erdman B. Debler, 2390 South Madison St., Denver, is handling advance planning for two cities, $33,000,000. CD 8/27/56.

▲† Connecticut—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., Hall Meadow Brook Reservoir on Hall Meadow Brook, tributary of Naugatuck River, $2,210,000 ($244,000 appropriated).

▲† Illinois—U. S. Eng., 420 Locust St., St. Louis, Mo., Shelbyville Reservoir, Kaskaskia River, $17,600,000 ($49,000 appropriated for planning).

▲† Indiana—U. S. Eng., 830 West Broadway, Louisville, Ky., Salamonie Reservoir on Salamonie River, tributary of Wabash River, $15,500,000 ($246,000 appropriated for planning).

▲† Iowa—U. S. Eng., Clock Tower Bldg., Rock Island, Ill., Saylorville Reservoir, Des Moines River, $44,453,000 ($295,000 appropriated for planning).

▲† Oklahoma—U. S. Eng., 626 S. Boston Ave., Tulsa, Luktata Reservoir on Glover Creek tributary of Little River, $15,100,000 ($49,000 appropriated for planning).

▲† Oklahoma—U. S. Eng., 626 S. Boston Ave., Tulsa, Pine Creek Reservoir on Little River, 5 mi. from Wright City, $15,400,000 ($78,000 appropriated for planning).

▲ Tex., Galveston—Galveston County, Courthouse, defeated bonds Sept. 26, Galveston Seawall exten. and seawall, Texas City, $2,500,000. CD 8/17.

AIRPORTS

▲† N. D., Fortuna—RADAR TOWER, etc.—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., radar tower and utilities, Fortuna Air Force Base, $1,250,000 funds released.

▲ Wash., Blaine—RADAR TOWER, etc.—U. S. Eng., 1519 S. Alaskan Way, Seattle, radar tower, electrical distr. sys., utilities, Blaine Air Force Base, $1,280,000 funds released.

(Continued on page 73)

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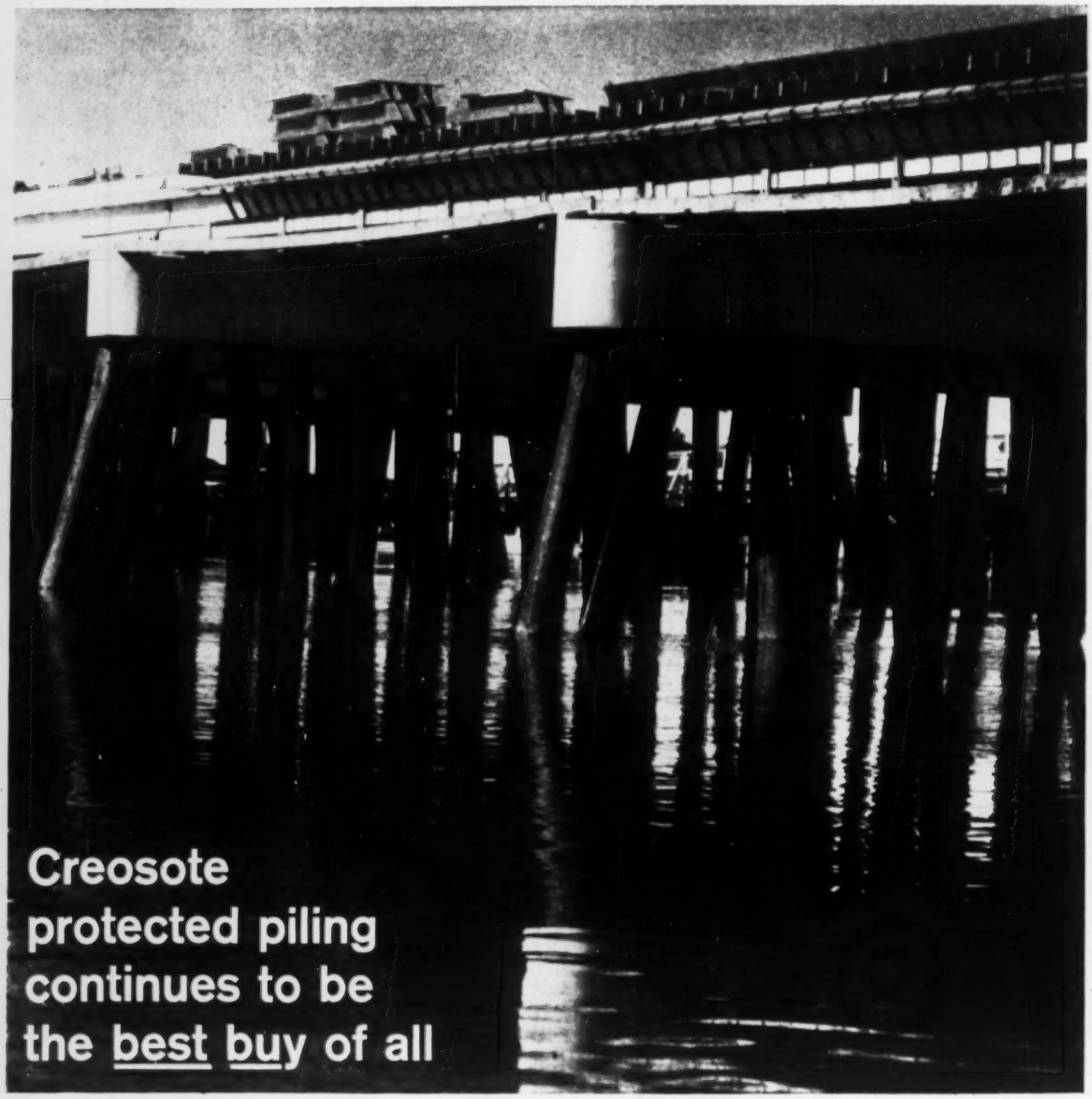

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(Continued from page 70)

▲† Wis., Kansasville—AIR BASE IMPRVS.—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., will not impry. Richard I. Bong Air Force Base. Appropriation cancelled. Base abandoned. CD 9/20.

LATIN AMERICA

▲ Mexico, Guadalajara—SUGAR MILL—Raul Urria & Accocs., Guadalajara, sugar mill, near here. $2,000,000.

▲ Mexico—Dpt. P. Wks., Minister of Hydraulic Resources, Main Admin. Bldg., Mexico City, dam, Tampeon River, Panuco River Valley State of Tamaulipas. $17,500,000; dam, Tamesi River, Panuca River Valley State of Tamaulipas. $27,500,000.

PUERTO RICO

▲ Puerto Rico, Fajardo—BEACH DEVELOPMENT—Coco Beach Estate, Inc., c/o G. Friedman, Box 39-B, RFD No. 2, Rio Piedras, plans by Horacio Diaz, 844 Hostos St., Rio Piedras, 840 acres beach development with hotels, marina homes. Over $25,000,000.

▲ Puerto Rico, Loiza—BEACH RESORT—Laguna Properties, Inc., Box 4007, San Juan, 201 acres beach resort, 4 hotels with 950 rooms, 18 hole golf course. $20,000,000.

▲ Puerto Rico, San Juan—OFFICE—Mantoloy Corp., Box 39-B, RFD No. 2, Rio Piedras, plans by Horacio Diaz, 844 Hostos St., Rio Piedras, 12 story, rein.-con. condominium office, 3 level parking. $1,700,000.

AMERICANS ABROAD

▲ France—PLANT—Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, O., U.S.A., tire plant and synthetics plant. $3,000,000. Site not selected.

▲ IRAN—Govt. of Iran, Tehran, 369 mi. highway. $25,000,000. Ammann & Whitney, 111 8th Ave., New York, N. Y., U.S.A., consult. engrs.

▲ Israel, Ashdod—PORT—Ministry Transport & Communications, Govt. of Israel, Tel Aviv, port constr. $54,000,000. Frederic R. Harris, 27 William St., New York 5, N. Y., U.S.A., consult. engrs.

▲ Vietnam, Saigon—HOTEL—Intercontinental Hotels, 135 E. 42nd St., New York, N. Y., U.S.A., 7 story, 300-room tourist hotel. $14,400,000.

▲ Vietnam, Saigon—JET RUNWAY—Govt. Vietnam, 3,000 meters jet runway Saigon International Airport. $5,000,000. T. B. Bourne Assocs., Inc., Dupont Circle Bldg., Wash. D. C., U.S.A., consult. engr. To go ahead end of 1959, beginning 1960.

▲ Vietnam, Saigon—Public Wks. Dept., Govt. Vietnam, water supply sys. for city. $19,500,000. Hydrotechnic Corp., 32 E. 57th St., New York 32, N. Y., U.S.A., consult. engrs. Bids 1960.

▲ Vietnam, Saigon—STEAM POWER PLANT—P. Wks. Dept., Govt. Vietnam, 25,000 kw steam power plant. $12,000,000. Sharff, Schobinger, Leeberger, c/o Day & Zimmermann, Inc., 1706 Sansom St., Phila., Pa., U.S.A., consult. engrs. Bids 1960.

▲ Vietnam, Saigon—MEDICAL CENTER—International Corporation Admin., 815 Conn. Ave. N.W., Wash. D. C., U.S.A., plans by Medical Center Designers, Inc., c/o Blanchard & Maher, 40 1st St., San Francisco, Calif., U.S.A., medical center of University of Saigon. $5,000,000.

FOREIGN

▲ Japan, Tokyo — IMPERIAL PALACE — Ministry of Imperial Household, 2 story, rein.-con. Imperial Palace. $20,000,000. Bids 1960-1961.

PUBLIC BUILDINGS

▲ Alaska, Anchorage — PUBLIC SAFETY, etc. — City, City Hall, voted bonds Oct. 6, public safety bldg., 2 fire stations. $1,750,000. CD 9/8.

▲ Alaska, Anchorage—SCHOOL—Anchorage Ind. School Dist., voted bonds Oct. 6, Senior High School, western edge of Mountain View Dist. $3,500,000. CD 6/9/58.

Calif., Burbank—CITY HALL ANNEX—City of Burbank, City Hall, 275 E. Olive St., plans by Prescott & Whalley, 2514 Hyperion Ave., Los Angeles, and Marion J. Varnes, 524 S. Rosemead Blvd., Pasadena, 2 story, bsmnt., 37,610 sq. ft. rein.-con., steel, City Hall annex, Olive Ave. and 3rd St. $970,000. Wheeler & Gray, 800 Colorado St., Los Angeles, consult., engrs. Bids soon. CD 1/5.

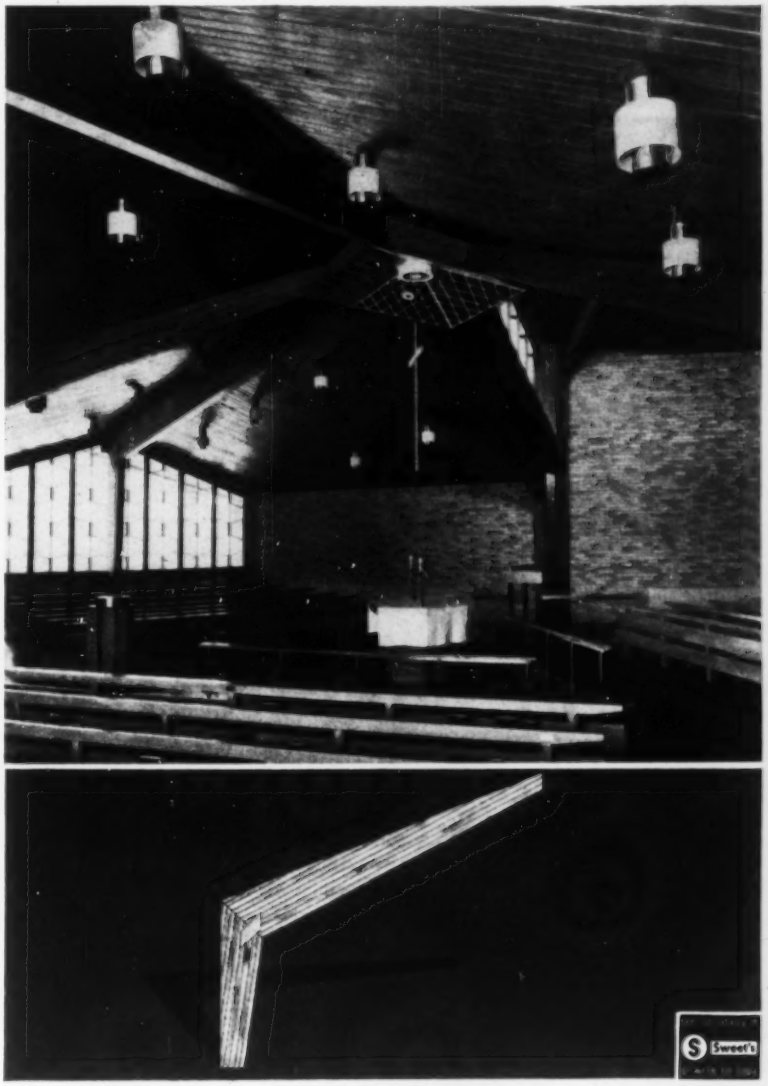
▲† Calif., San Diego — PLANT, etc. — Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. D. C., 400 kw. experimental low temp. process heat reactor to supply heat for water distillation plant for Dpt. Interior, Saline Water Dpt., Site selected, Point Loma, near here. $4,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs. CD 9/16, under California.

▲ Calif., Selma—SCHOOL—Selma Union High School Dist., school. $1,000,000.

▲ Colo., Thornton—SCHOOL—School Dist. No. 12, 810 Eppinger Blvd., elementary school and high school. $1,985,000.

▲† Conn., Groton—HOUSING—Dist. P. Wks. Office, Third Naval Dist., 90 Church St., New York, N. Y., plans by Kane & Fairchild, 734 Asylum Ave., Hartford, 500 units Capehart Housing, U. S. Submarine Base, 2nd Section. $8,250,000. Jacob Koton Assocs., 919 Albany Ave., New York, N. Y., consult. engrs., Loomis & Sullivan, 641 Farmington Ave., Hartford, assoc. engr. Yarwood & Block, 1243 Church of the Good Shepherd, Lyndhurst, Ohio. Architects: Hays and Ruth, Cleveland. Structural Engineers: Barber, Magee and Hoffman. Contractors: Consolvo and Sembric, Cleveland.

Space provided: nave seating 240 people in three sections; general entrance foyer; pastor's study and administrative office; kitchenette; large classroom area with portable partitions. *Structural framing:* glulam timber rigid frames spaced radially from central compression ring. *Exterior walls:* brick and redwood siding. *Interior walls:* exposed brick; acoustical plaster in classroom wing. *Roof:* asbestos shingles over Douglas Fir Tim-Deck. *Floor:* asphalt tile over concrete slab. *Lighting:* incandescent fixtures. *Heating:* gas-fired hot water, wall convectors. *Ventilation* exhaust fan for air change. *Volume:* 125,000 cubic feet. *Area:* 9,413 square feet.



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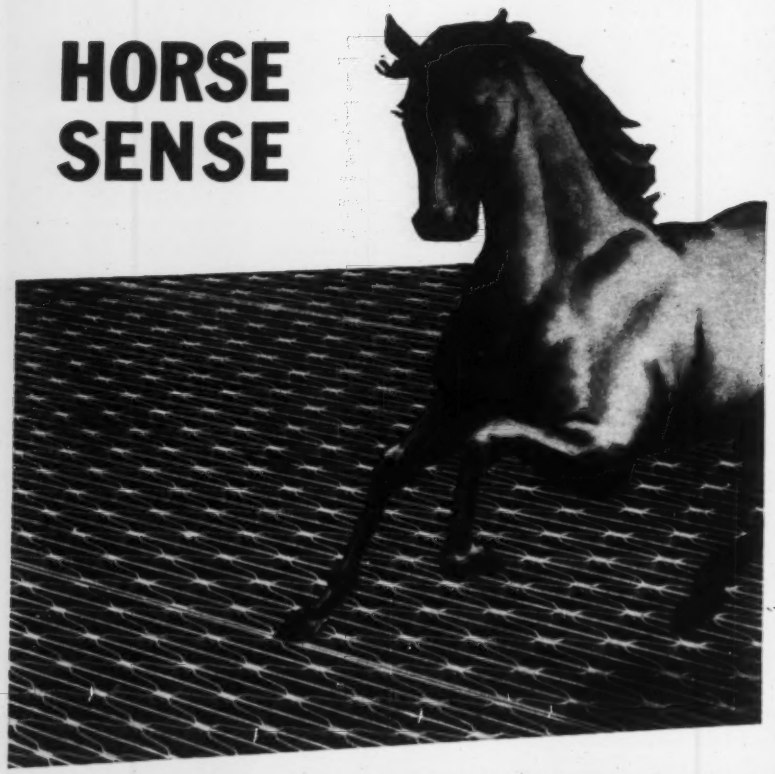

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Hopemeadow St., Simsbury, landscape archt. CD 9/30.

▲ **Conn., Torrington**—SCHOOL—Town, Town Hall, referendum voted Oct. 5, on $3,500,000 bond issue High School Nichols & Butterfield, 998 Farmington Ave., West Hartford, archts. CD 9/16.

▲ **Conn., Wethersfield**—OFFICE—State P. Wks. Dpt., 165 Capitol Ave., Hartford, plans by Golden-Storrs Assocs., 1232 Farmington Ave., West Hartford, 3 story office bldg. for State Labor Dpt., Jordan Lane, $2,500,000. CD 7/1, under Conn., Hartford.

▲ **Ill., Arlington Heights**—SCHOOL—School Dist. 214, vote referendum for bond issue Nov. 14, high school, Goebbert Rd. between Arlington and Golf Rds., $3,900,000. CD 5/8.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Authority, 608 S. Dearborn St., Zone 5, plans by Nicol & Nicol, 23 E. Jackson Blvd., Zone 4, Proj. 236, 140 unit HOUSING, Jackson Blvd. and Campbell Ave. $1,610,000. Bids about February.

▲ **Ill., Chicago**—HOUSING—Chicago Housing Authority, 608 S. Dearborn St., Zone 5, plans by Alfred L. Mell, 8 S. Michigan Ave., Zone 3, and Quinn & Christiansen, 134 N. LaSalle St., Zone 1, Proj. 235, Governor Horner 748 unit housing extension. $8,986,000. Bids about January. CD 10/20/55.

▲ **Iowa, Burlington** — SCHOOL — Bd. Educ. Community School Dist., voted $1,620,000 bonds Sept. 15, Junior High School; elementary school. Dane D. Morgan & Assocs., 314 N. 4 St., archts. CD 6/4.

▲ **Kan., Emporia**—FAMILY FACILITIES—State, Bd. Regents, Topeka, (Proj. CH-Kan-53D-96) family facilities, State Teachers College, $1,000,000.

▲ **Me., Orono**—BUILDINGS—State of Maine, Augusta, voted $3,950,000 bonds Oct. 12, buildings at University of Maine. CD 9/2.

▲ **Mass., Pittsfield**—SCHOOL—City, School Dpt., 43 East St., Junior High School, $1,850,000. Constr. 1960.

▲ **Mass., Worcester**—SCHOOL—City, City Hall, plans by L. W. Briggs Assocs., Inc., 90 Park Ave., Burncoat Senior High School, Burncoat St., $1,500,000, Constr. 1960.

▲ **Minn., Hutchinson** — SCHOOL — Bd. Educ., voted $2,395,000 bonds, Oct. 6, Junior High School, $2,200,000 Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. Constr. 1960.

▲ **Minn., International Falls**—SCHOOL—Bd. Educ., voted $1,800,000 bonds Oct. 6, high school. Melander, Fugelso & Assocs., 603 Alworth Bldg., Duluth, archts. CD 8/20.

▲ **Minn., St. Paul Park**—SCHOOL—Bd. Educ. Independent School District No. 833, voted $4,000,000 bonds Oct. 6, schools. W. Butler Co., 1300 Minnesota Bldg., archts. CD 9/11.

▲ **Mo., North Kansas City**—SCHOOL—Bd. Educ., 2000 E. 46th St., Zone 16, bond election Feb. 2, Junior High School. $1,200,000.

▲ **Nev., Reno**—SCHOOLS—Washoe County School Dist., Courthouse, voted $6,000,000 bonds, one high school and two Junior High Schools. CD 8/20/58.

▲ **N. J., Basking Ridge**—SCHOOL—Bd. Educ., Bernards Twp., referendum on bonds and project voted Oct. 6, high school, $1,532,000. Mickelwright & Mountford, E. Stuyvesant St., Trenton, archts. CD 7/30.

▲ **N. J., Irvington**—LIBRARY—Town, Town Hall, project and bond election Nov. 3, library, $1,000,000. George Hechtel, 1039 Springfield Ave., archt. CD 9/16.

▲ **N. J., Sayreville**—SCHOOL—Bd. Educ., voted referendum on project and bonds Oct. 6, high school, $3,425,000. Edwards & Green, 17 South 5 St., Camden, archts. CD 8/28.

▲ **N. M., Albuquerque**—CITY-COUNTY BLDG.—Bernalillo Co. and City of Albuquerque, defeated $4,000,000 bonds Oct. 6 for city-county bldg. CD 8/31.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-108, public school 243, Troy Ave., Dean and Bergen Sts. $2,900,000. To go ahead in 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Frederick G. Frost Assocs., 144 E. 30th St., New York, Zone 16, Proj. E-401, Junior High School 294, DeKalb & Carlton Aves. $4,000,000. To go ahead 1960.

▲ **N. Y., Syosset**—SCHOOLS—Central School Dist. No. 2, Junior High School, Jericho Turnpike and Robbins Lane Elementary School addn. $3,850,000. Projects approved by referendum vote Sept. 26. CD 12/26/57.

▲ **N. Y., White Plains**—LIBRARY—City Council, City Hall, plans by Francis Keally, 17 E. 49th St., New York, N. Y., library, Mamaroneck & Bryant Aves. $1,000,000. Bids in six weeks.

▲ **Pa., Burgettstown**—SCHOOL—Burgettstown-Union Jt. Dist., plans by Arthur Tennyson, 666 Washington Rd., Pittsburgh, Zone 28, Burgettstown-Union Joint High School, Smith Twp., $3,000,000. Louis Reid, 666 Washington Rd., Pittsburgh, consult. engr. CD 5/25.

▲ **Pa., Monaca**—SCHOOL—Monaca Joint School Dist., plans by Campbell & Green, Architects and Engineers, archts., consult. engrs., 504 Beaver St., Sewickley, Monaca Area Joint Junior and Senior High School, $3,000,000.

▲ **Tenn., Elizabethton**—HIGH SCHOOL—Carter County School Bd. plans by Fred Snodgrass, 315 E. Drive, high school. $1,354,000. CD 9/1.

▲ **Tex., Dallas**—HOSPITAL—Community East, Inc., c/o Ben F. Tisinger, 2357 Gus Thomasson Rd., plans by Geo. L. Dahl, 2101 N. St. Paul St., 200 bed hos-

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pital, Bruckner Blvd. and Ferguson Rd. $5,080,000. CD 9/25.

▲ **Tex., Denton**—DORMITORY—Board for Texas State Hospitals & Special Schools, 4405 N. Lamar Blvd., Austin, plans by Robert M. Stein, superv. archt., 4405 N. Lamar Blvd., Austin, and Harper & Kemp, 710 Thomas Bldg., Dallas, 300 bed dormitory addn. for mentally retarded children, **$1,250,000.** Bids December or January. CD 9/3.

▲ **Tex., Denton** — DORMITORIES — North Texas State College, c/o Dr. J. C. Matthews, pres., plans by Wilson Patterson and Assoc., 601 Bailey St., Fort Worth, 2 women's dormitories. **$2,126,000.** CD 9/3.

▲† **Tex., Houston** — POSTOFFICE — General Services Admin., U. S. Postoffice Dpt., Public Bldgs. Service, 19th and F Sts. N.W., Wash., D. C., plans by Wilson, Morris, Crain & Anderson, 3330 Graustark St., 2 story, 498,000 ft. work space under roof. U. S. Post Office also 5 story, 59,000 sq. ft. steel frame, flat slab office tower. $10,000,000. Dale S. Cooper & Assocs., 420 Sul Ross St., and Walter P. Moore, 2 Pinedale St., consult. engrs.

▲ **Tex., Galveston**—JAIL—Galveston County, Courthouse, voted bonds Sept. 26, jail. **$1,900,000.** CD 8/17.

▲ **Tex., Galveston**—HOSPITAL—Galveston County, Courthouse, voted bonds Sept. 26, Memorial Hospital expansion, **$2,500,000.** CD 8/17.

▲ **Tex., Houston**—HOSPITAL, etc.—University of Texas, c/o Bd. Regents (Governing Body) Main Admin. Bldg., Austin, plans by Jessen & Jessen, Millhouse & Greeven, 2816 Hemphill Park, Austin, and Mackie & Kamrath, 2713 Ferndale St., Houston. M. D. Anderson Hospital and Tumor Institute enlargement. **$2,750,000.**

▲ **Tex., Midland**—SCHOOLS—Midland Ind. School Dist., Elementary School No. 1, $500,000; Elementary School No. 2, $450,000; Elementary School No. 3, $500,000; plans by Preston M. Geren, 1607 Fort Worth National Bank Bldg., Fort Worth, high school, **$1,650,000.**

▲ **Tex., Wichita Falls**—SCHOOL—Wichita Falls Ind. School Dist., 1105 Holiday, plans by Pond & Bellamy, 2123 Brook St., Senior High School. **$1,250,000.** CD 12/3/58.

▲ **Va., Richmond** — SCHOOL — Richmond City School Boards, 9th and Marshall Sts., John Marshall High School (Northside of Richmond). **$2,750,000.** George Wythe High School (Southside) **$2,750,000.**

▲ **Va., Victoria**—SCHOOL—Lunenberg Co. School Bd., Victoria, plans by Dixon & Norman, 1103 E. Main St., Richmond, Consolidated High School, **$1,000,000.**

Wash., Puyallup—SCHOOL—School Dist. No. 3, 60,480 sq. ft. Junior High School. **$915,473.** Constr. 1961. CD 3/5/56.

▲ **Wash., Walla Walla**—SCHOOL—School Dist. No. 140, bond election Nov. 3, high school addn. **$2,300,000.** CD 11/10.

▲ **Que., Montreal**—SCHOOL—Provincial Secretary's Dpt., Parliament Bldgs., plans by Roland Dumais, 3995 Sherbrooke St. E., Commercial High School and admin. bldg., near Maplewood Ave. **$2,000,000.** CD 7/21.

COMMERCIAL BUILDINGS

▲ **Calif., Bolinas**—APARTMENTS—Alcan Pacific Co., c/o Lester C. Burdett, 18 College Place, Larkspur, 300 unit apartment development, Mesa Rd., **$3,000,000.**

▲ **Calif., Burlingame**—APARTMENTS—Eugene Umland c/o James H. Mitchell, archt., 468 Jackson Square, San Francisco, 50 unit, 10 story, **25,520** sq. ft. apartment, ground level garages, El Camino Real and Arc Way. **$2,000,000.**

▲ **Calif., Canoga Park**—ADMINISTRATION—Marquardt Aircraft, 1665 Saticoy St., plans by George Vernon Russell, 410 N. Rosenell Terrace, Los Angeles. 60,000 sq. ft., steel frame Aircraft Administration Bldg., Saticoy St. **$1,250,000.**

▲ **Calif., Gilroy**—HOSPITAL—Wheeler Hospital Assn., 650-5th St., plans by Stone, Marraccini & Patterson, 536 Mission St., San Francisco, 2 story, 50 bed, Wheeler Hospital. **$1,000,000.**

▲ **Colo., Denver** — OFFICE — Industrial Federal Savings Assn., 1630 Stout St., plans by Raymond Henry Erwin, 630 Kirmira, 24 story office, 17 and California Sts. **$6,000,000.**

▲ **Conn., New Haven**—STORE—Stevens-New Haven Development Corp., 745 Fifth Ave., New York, N. Y., plans by John Graham, 1501 Dexter-Horton Bldg., Seattle, Wash., 2 story, 240,000 sq. ft. department store, Church St., Church St. Redevelopment Area. **$2,400,000.** Edward Malley Co., lessee. CD 6/25/57.

▲ **D. C., Wash.**—CULTURAL CENTER—Cultural Center Bldg. Smithsonian Institute, 10 St. and Independence Ave. S. E., plans by Edward D. Stone, 38 E 65 St., New York, N. Y., National Cultural Center, Potomac River, Inner Loop Freeway. **$10,000,000-$25,000,000.** CD 9/18/58.

▲ **Fla., Orlando**—APARTMENT — Lucerne Towers, S. Orange Ave., Main St., 8 story, 160 unit apartment 3 acre tract, incl. 202 car parking. **$3,000,000.**

▲ **Hawaii, Honolulu**—HOUSES, etc.—Bishop Estates, 519 HaleKauwila St., plans by Austin & Towill, 850 Richards St., 5,000 houses, 22 apartments, hotel, shopping center, next 10 and 12 years. **$100,000,000.**

▲ **Ill., Kankakee**—HOSPITAL, etc.—Citizens Hospital Comm., City Hall and Stewards Foundation, Chicago, hospital and retirement home, Entrance Ave. and Williams St. **$2,500,000.** CD 9/15/54.

▲ **Ill., Zion**—CHURCH—Christian Catholic Church, 27th and Enoch Sts., plans by Edgar R. Firant, 1424 McKay Tower, Grand Rapids, Mich., church. $1,000,000.

(Continued on page 78)

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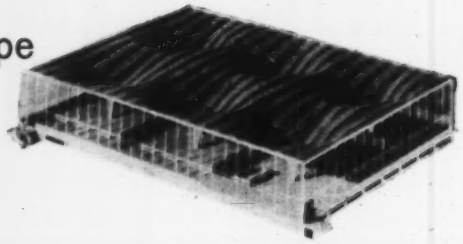

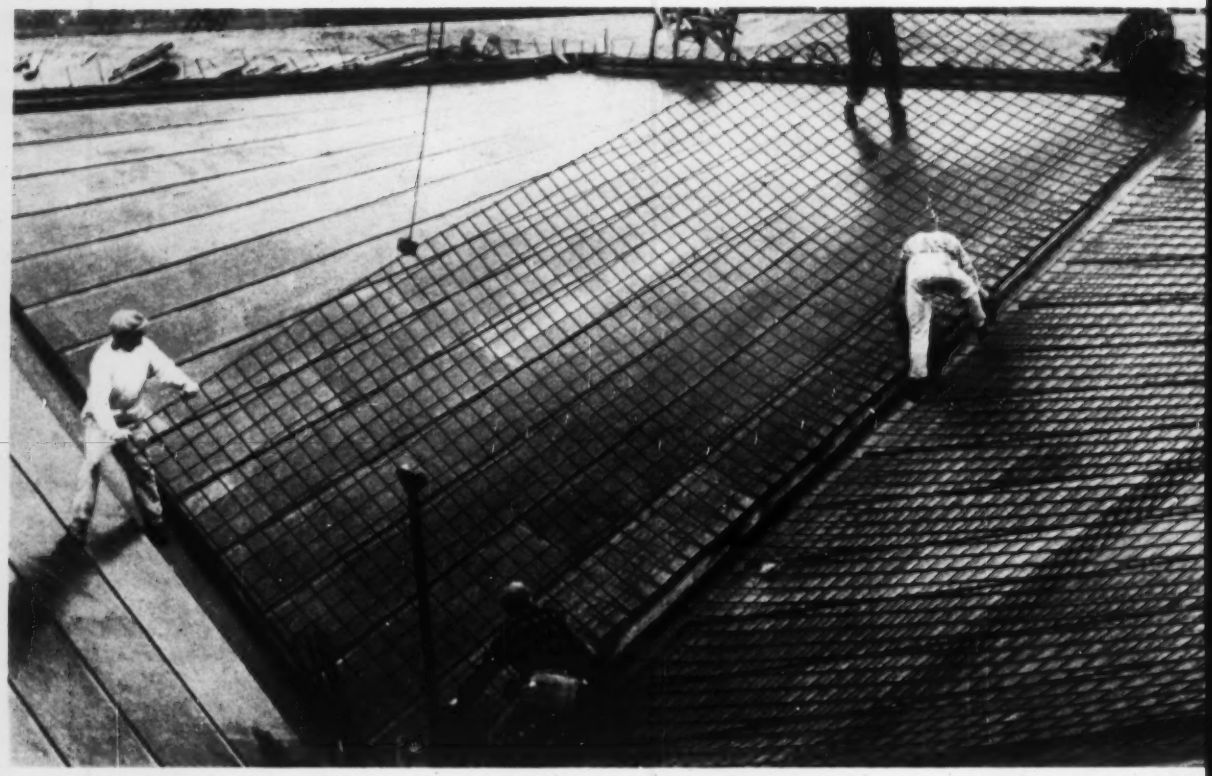

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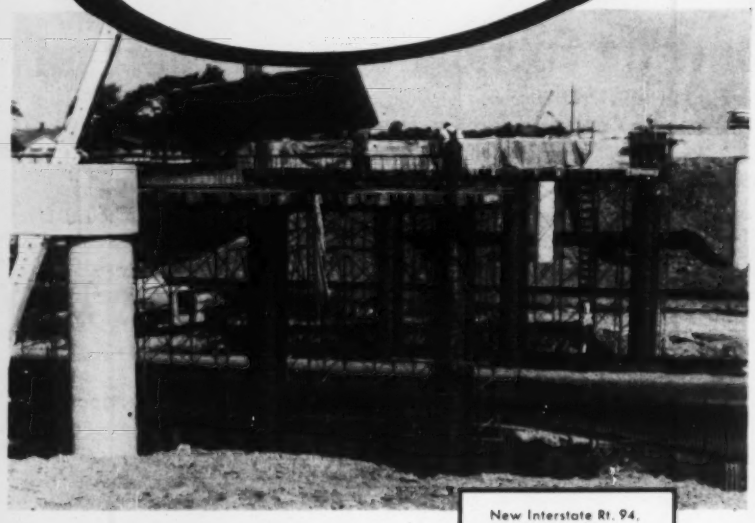

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(Continued from page 75)

▲ **Ind., Anderson**—SHOPPING CENTER—Owner, c/o John M. Rock, realtor, 109 E. 9 St., shopping center, 15-acre site at State Rte. 32 and Raible Ave., on west side, $1,000,000. Constr. in 1960.

▲ **La., Bossier City**—SHOPPING CENTER, etc.—Don S. Coleman & Assocs., 123,040 sq. ft., masonry shopping center, 1,000-auto center, $1,500,000.

▲ **Mass., Worcester**—STUDENT UNION—Holy Cross College, College St., plans by C. W. Buckley, Inc., 311 Main St., student union bldg., Campus. Approx. $1,000,000. Constr. 1960. CD 10/5/45.

Mich., Lansing — HEADQUARTERS — Michigan Educ. Assn., P. O. Box 5007, plans by Warren Holmes Co., 820 N. Washington St., headquarters. $900,000.

Minn., Hastings—HOSPITAL—Sisters of Charity, plans by Bettenburg, Townsend, Stolte & Comb, 1437 Marshall Ave., St. Paul, 3 story rear wing of 50 beds, etc. hospital addn. $900,000. Constr. 1960.

▲ **Mo., Florissant**—SHOPPING CENTER—Contemporary Homes, Inc., 9220 Lackland Rd., Overland, Zone 14, 71,000 sq. ft. Robinwood Shopping Center, incl. sheltered walkways, parking areas, etc. Waterford Dr. and St. Catherine Ave. Over $1,000,000. Const. 1960 or 1961.

▲ **Neb., Lincoln**—HOSPITAL—Bryan Hospital, Bd. Directors, 4848 Summer St., plans by Davis & Wilson, 226 Stuart Bldg., hospital addns., 3 story, bsmnt. nurses home, hospital remodeling, modernization, $2,800,000. CD 9/4/57.

▲ **N. Y., New York**—OFFICE—Harry Horowitz & Milton Barkin, 565 5th Ave., Zone 17, plans by Leo Stillman, 332 E. 149th St., Zone 52, 26 story office, northeast corner 3rd Ave., and E. 48th St. $3,000,000.

▲ **O., Cleveland Heights** — APARTMENT — Waldorf Towers, Inc., 10001 Carnegie Ave., Cleveland, Zone 6, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 14, 160 suite 8 story apartment, East Overlook Rd. and Kenilworth Lane. $3,200,000.

▲ **O., Columbus**—HEADQUARTERS—Ohio Society of Professional Engineers, S. E. Long St., plans by Freshwater & Harrison, 3763 N. High St., 2 story, 60,000 sq. ft. headquarters. $1,000,000.

▲ **O., Middleburg Heights**—HOMES—Unnamed Corporation, c/o Norman Yunis, 13320 Pleasant Valley Rd., Cleveland, Zone 30, plans by Anderson & Dracon, 4527 Brookpark Rd., Cleveland, Zone 34, 60 homes, Pearl Rd. between Smith Rd. and Shawnee Trail. $2,000,000. Constr. next spring.

▲ **O., Toledo**—MOTEL, etc., Simone & Co., 15800 W. McNichols, Detroit, Mich., plans by King & Lewis, 15790 Wyoming, Detroit, Mich., 2 story, U-shaped motel, 4 story office, Toledo Express Airport, $1,000,000.

▲ **Ore., Milwaukee**—HOSPITAL—Methodist Home, Inc., 12601 SE River Rd., plans by Leslie E. Poole archt.-consult., engr., 301 Royal Bldg., Portland, 300-bed hospital. $2,500,000. CD 7/2/58.

▲ **Pa., Phila.** — HOTEL — Vine-Wood Realty Corp., Broadwood Hotel, Broad and Wood Sts., plans by Philip Mastrin, Penn Square Bldg., Juniper and Filbert Sts., Broadwood Hotel renovation, modernization. $1,000,000. CD 10/2/.

▲ **Pa., Plymouth Meeting**—MOTEL, etc.—Fleetwood Motel Corp., c/o Richard Miller, Phila. National Bank Bldg., Phila., plans by Edwyn Grant Rorke, RD 4, Norristown, motel, restaurant, cocktail lounge, Germantown Pike. $1,000,000.

▲ **Pa., Uniontown**—MOTHER HOUSE—Byzantine Catholic Diocese, 54 Riverview Ave., Pittsburgh, plans by Celli-Flynn Architects & Engineers, archts.-consult. engrs., 335 Shaw Ave., McKeesport, Pa., Mt. Macrina Mother House. $3,000,000.

▲ **Tex., Beaumont**—BANK, etc.—American National Bank, 470 Orleans St., plans by Harrell & Hamilton, Republic National Bank Bldg., Dallas, and Livesay & Livesay, assoc archts., Beaumont, 5 story bank office. $1,000,000. Bids in April. CD 11/20.

▲ **Tex., Dallas**—SCHOOLS—Catholic Church, c/o Bishop Thomas K. Gorman, 2122 Kidwell St., high school, Oak Cliff, $800,000; high school in East Dallas, $2,000,000; high school in North Dallas, $1,000,000.

▲ **Tex., Dallas**—HOTEL—Exchange Park Co., Exchange Bank Bldg., plans by J. N. McCammon & Assocs., archts.-consult. engrs., Meadows Bldg., 16 story hotel. $20,000,000. Bids 1960. CD 10/20/58.

▲ **Va., Richmond**—HOSPITAL—Catholic Diocese of Richmond, 800 Cathedral Pl., plans by Frank Martinelli & Son, 4620 Lee Highway, Arlington, hospital on Church owned 21½ city blocks at Monument Ave. and Libbie. $3,500,000.

▲ **Va., Richmond**—SEMINARY — Catholic Diocese of Richmond, 800 Cathedral Pl., plans by Frank Martinelli & Son, 4620 Lee Highway, Arlington, St. John Vianney Minor Seminary, River Rd. $1,500,000.

▲ **Va., Richmond**—HOUSING—Parham Corp., 2913 W. Leigh St., 120-150 home subdivision, 52 acres on Parham Rd. between Minns Dr. & Mark Lawn, known as Parham Estates. $2,400,000.

▲ **Va., Rocky Mount** — CLASSROOMS, etc.—Ferrum Junior College, classrooms, dormitory. $1,100,000.

▲ **Wis., Milwaukee**—OFFICE—Milwaukee Journal, 333 W. State St., Zone 3, plans by Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, 2, 3 and 5 story, 190,000 sq. ft. office addn. $1,000,000.

▲ **Wis., Waukesha**—SCHOOL—Catholic Memorial High School, plans by Grellinger-Rose Assocs., Inc., 757 N. Broadway, Milwaukee, Zone 2, school addn. $1,200,000.

▲ **Ont., Owen Sound**—COMMERCIAL AND MUNICIPAL —Arcon Developments Ltd. c/o George C. N. Tonks &

Assocs., archts., 57 Bloor St. W., Toronto, commercial and municipal bldg., site of present city hall, $1,000,000.

▲ Ont., Toronto—OFFICES, etc.—Eastern Realty Co., 17 Queen St. E.; plans by Bregman & Hamann, 146 Bloor St. W.; Rockefeller Centre Type Proj., consisting of 30 and 17 story, stainless steel, glass, concrete, air-conditioning offices with pedestrian mall; restaurants, skating rink on mall, Block Downtown Toronto, Yonge, Queen, Victoria and Richmond Sts. $40,000,000.

INDUSTRIAL BUILDINGS

▲ Ariz., Tucson—PLANT—American Smelting & Refining Co., 120 Broadway, New York, N. Y., plant, incl. 15,000 tpd per day copper flotation concentrator, Mission Project, near here, $40,000,000. Western-Knapp Engineering Co., 650 S. St., San Francisco 7, Calif., consult. engrs.

▲ Calif., San Jose—RESEARCH AND DEVELOPMENT CENTER—Food Machinery & Chemical Corp., 1105 Coleman Ave., plans by Anshen & Allen, 461 Bush St., San Francisco, 1 and 2 story, 45,000 sq. ft. Research and Development Center, Coleman Ave. $1,000,000.

▲ Calif., San Rafael—INDUSTRIAL CENTER—Owner, c/o David Glazer, 80 Cortez Solano, Greenbrae; industrial center, incl. freight terminal, warehouses and factories. $1,000,000.

▲ N. J., Pennsauken—INDUSTRIAL PARK—Lexington Manor Co., c/o W. Leslie Rogers, Pennsauken Industrial Park No. 4. Over $5,000,000.

▲ N. Y., DeWitt (Br. Syracuse)—PLANT—Chrysler Corp., New Process Gear Div., 341 Massachusetts Ave., Highland Park, Mich.; plans by Albert Kahn Associated Architects & Engineers, Inc., archt.-consult. engr., 345 New Century Bldg., Detroit, Mich.; 1 story 400,000 sq. ft. pre-cast concrete steel gear plant, Thruway and Fly Rd. $4,000,000.

▲ Pa., Phila.—PLANT—J. J. Nesbitt, Inc., State Rd. and Rhawn St., mfg. plant, 25 acre site. $2,000,000.

▲ S. C., Catawba—PAPER MILL—Bowaters-Carolina Corp., paper mill. $25,000,000.

▲ Wyo., Cody—PLANT—Big Horn Basin Gypsum Co., gypsum board plant, near here. $3,000,000.

▲ Que., Nicolet—GRAIN ELEVATOR—Toronto Elevators, Ltd., 417 Queen's Quay, Toronto, Ont., grain elevator, $1,000,000.

▲ Ont., Ottawa—PLANT—Cooksville-Laprairie Brick Ltd., div. Dominion Tar & Chemical Co. Ltd., Sun Life Bldg., Montreal, Que.; brick plant, tunnel kilns, near here. $3,500,000.

▲ Que., Three Rivers—PLANT—Societe Generale de l'Electricite de Lyon, City Hall, plant, Banlieues des Trois Rivieres. $1,000,000.

UNCLASSIFIED

▲ Alaska, Anchorage—GAS PIPE LINE—Anchorage Gas Corp., 165 mi. pipe line from Kalifonsky area of Kenai Peninsula to Anchorage. $15,000,000.

▲ Alaska, Anchorage—OFF STREET PARKING FACILITIES—City, City Hall; voted bonds Oct. 6, purchase and improvs. property for off-street parking facilities. $2,500,000. CD 9/3.

▲+ Calif., Boron—RADAR TOWER, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles; radar tower and utilities, Boron Air Force Base. $1,035,000 funds released.

▲ Calif., Colma—CEMETERY—Skylawn Memorial Gardens, 17 41 Ave., San Mateo; cemetery, Skylawn Memorial Gardens, off Skyline Blvd.; 134 acre site. $1,500,000.

▲ Calif., San Diego—WATER CONVERSION PLANT—Saline Water Div., Dpt. Interior, C St. between 18th and 19th Sts., N.W., Wash., D. C.; 1 m.g. per day saline water conversion plant, Point Loma, near here. $2,000,000. Fluor Corp., 12000 E. Washington Blvd., Whittier; consult. engr.

▲ Calif., San Francisco—PORT DEVELOPMENT, etc.—San Francisco Port Auth., Ferry Bldg.; plans by John S. Bolles, 14 Gold St., and Ernest Born, 730 Montgomery St.; port development along Embarcadero, incl. super-cargo terminal north Islais Creek; 9-berth wharf; remove piers north of Ferry Bldg. Distr. and Warehouse Center; modernize and reconstr. certain piers. $50,000,000. CD 12/11/57.

▲+ Nev., Fallon—RADAR TOWER—U. S. Eng., 1209 8th St., Sacramento, Calif.; radar tower, electric power plant, distr. sys. and utilities, Fallon Air Force Base. $2,290,000 funds released.

▲ O., Toledo—RECREATION—City, City Hall; defeated bonds Oct. 6; 5 year recreation program incl. playgrounds, parks, pools. $4,000,000. CD 6/12.

▲ Tex., Dallas and Fort Worth—STADIUM—Dallas County, Comrs. Court, Dallas and Tarrant County, Comrs. Court, Fort Worth, c/o Records Bldg., Dallas; voted bonds Oct. 6, major baseball league type stadium and appurtenances, vicinity of Arlington between Dallas and Fort Worth. $9,500,000. CD 9/18.

▲ Que., Baie Comeau—PIERS—Dpt. P. Wks., Parliament Bldgs., Quebec City; piers on St. Lawrence River. $1,000,000. Gerry Millar, Dept. P. Wks., engr.

▲ Que., Nicolet—WHARF—Dpt. P. Wks., Parliament Bldgs., Ottawa, Ont.; wharf on St. Lawrence River, $1,000,000. A. Gagnon, 1631 rue de Lorimier, Montreal, engr.

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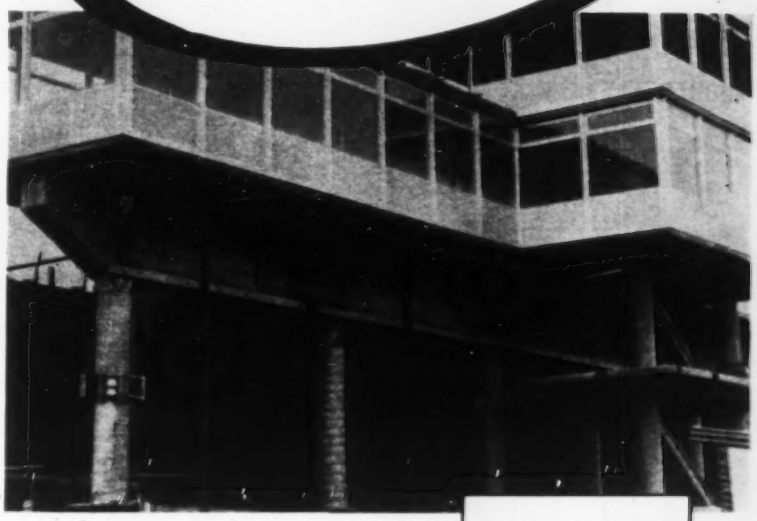

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

November 3 Massachusetts

BUILDINGS—LB & CA

▲† **Consolidated Constructors, Inc.**, 807 Congress St., Portland, Me., CA **$4,443,305**, VLF HELIX HOUSES, Naval Radio Station, Washington Co., NBy 22964, Spec. 22964/58, JONESPORT, ME. First Naval Dist., 495 Summer St., Boston, Mass. Bids Sept. 17. CD 9/22, under LB.

▲ **Harlyn, Inc.**, 165 Whalley Ave., New Haven, Conn., Owner Builds, **$4,500,000**, 100 HOUSES, "Woodbridge Acres," Brookwood Drive, WOODBRIDGE, CONN. CD 6/19/57.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 19 New York

STREETS AND ROADS

November 19 New York

▲ **N. Y., Brooklyn**—PIER No. 6—BA 11/17—Port of New York Authority, 111 8th Ave., New York, Zone 11, demolition existing structures, constr. bulkhead, dredging and placing fill for Pier No. 6, Brooklyn-Port Authority Piers, Contr. BP-190,001. Plans deposit $25. CD 8/20.

BUILDINGS—BA

▲ **D. C., Wash.**—FIREHOUSE AND POLICE PRECINCT—BA 11/19—D. C. Govt. Bldgs. & Grounds, 499 Pa. Ave. N.W., No. 13, Engine Co. and No. 10 Truck Co. Firehouse, 6 and E Sts. S.W. and Police Precinct No. 4, 4 St. between E and School Sts. S.W. Plans deposit $100. Cfas & Riggs, Wyatt Bldg., 777 14 St. N.W., archts. CD 9/9/58.

BUILDINGS—LB & CA

▲ **Bd. Educ.**, Oceanside, N. Y., cancelled bids to have been opened Oct. 21, Junior High School, OCEANSIDE, N. Y. **$3,300,000.** Knappe & Johnson, 2110 Northern Blvd., Manhasset, N. Y., archts. CD 9/2.

▲ **United Constr. Co.**, 1204 Lincoln Ave., Pittsburgh 6, Pa., CA **$2,873,000**, four 8 story 300 unit DWELLINGS, 3rd Ward and 8th Ward, McKEESPORT, PA. Housing Auth., City of McKeesport, Ohio and Brownlee Sts., McKeesport, Pa. Bids Sept. 18. CD 8/27.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 3 North Carolina November 10 Virginia
November 19 Florida

STREETS AND ROADS

November 3 North Carolina November 5 Louisiana
November 10 Virginia

▲† **Alabama and Georgia**—BA 12/22—U. S. Eng., 2301 Grant St., Mobile, Ala., Lock at Walter F. George Project, Chattahoochee River, IFB CIVENG-01-765-60-98. CD 9/28.

BUILDINGS—BA

▲ **Miss., Natchez**—PLANT, etc.—BA 11/15—Armstrong Tire & Rubber Co., 475 Elm St., West Haven, Conn., 300,000 sq. ft. manufacturing plant addns., involving warehouse, office bldg., steam plant and production bldgs. $3,000,000. James T. Canizaro, 112 Deposit Guaranty Bank Bldg., Jackson, archt. CD 7/6/54.

HEAVY CONSTRUCTION—LB & CA

▲† **Henry C. Beck Co.**, 205 Worth Ave., 304 Armour Bldg., Palm Beach, Fla., and Fulton National Bank Bldg., Atlanta, Ga., LB **$4,321,659** (17 bidders), launch facilities Complex 34 (Saturn) Cape Canaveral Missile Test Center, Patrick Air Force Base, ENG-08-123-60-12, COCOA, FLA. U. S. Eng., Box 4970, Jacksonville 1, Fla. Bids Oct. 15. CD 10/1.

BUILDINGS—LB & CA

▲ **George A. Fuller Co.**, 597 Madison Ave., New York 22, N. Y., CA, 244,000 sq. ft. PLANT to manufacture cooking utensils, MARTINSBURG, W. VA. Corning Glass Co., Walnut St., Corning, N. Y.

▲ **George W. Kane**, 603 Jefferson Standard Bldg., Greensboro, N. C., CA Est. **$3,000,000**, OFFICE, WINSTON-SALEM, N. C. Mary Reynolds Babcock Fdn., 2000 Beach St., Winston-Salem, N. C.

▲ **Food Fair Stores, Inc.**, 401 E. Erie Ave., Phila., Pa., Separate Contracts, Over **$3,500,000**, 350,000 sq. ft. WAREHOUSE, 350,000 sq. ft. OFFICE, JACKSONVILLE, FLA. Louis Kasoff, 401 E. Erie Ave., Phila., Pa., archt.

▲ **George A. Fuller Co.**, 1 Peachtree Bldg., Atlanta, Ga., CA **$3,000,000**, BREWERY addn., TAMPA, FLA., Anheuser-Busch, Inc., 721 Pestalozzi St., St. Louis, Mo. CD 7/29.

▲ **Winston-Robin Constr. Co.**, 940 Lincoln Rd., Miami Beach, Fla., CA **$5,884,700**, 353 unit APARTMENT, Collins Ave., Bal Harbour, WEST PALM BEACH, FLA. Robin Enterprises, Inc., 940 Lincoln Rd., Miami Beach, Fla. T. T. Russell & Assocs., DuPont Plaza Center, Miami, Fla., archts. N. J. Dignum Assocs., 260 Palermo Ave., Coral Gables, Fla., structural engrs. R. L. Duffer & Assocs., 3356 Virginia St., Miami, Fla., mech.-elec. engrs.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

November 4 Michigan November 10 Ohio

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus 15, Bids opened 10/13,

O.—**Great Lakes Constr. Co.**, 1968 W. 3rd St., Cleveland, O., LB **$4,597,693**, est. $5,100,400 (12 bidders) Type T-71 and structures 4.013 mi. SR 1 (SR 306) 4.02 (new ACI 90-1-(22-23, S-46(7) (Old) I-1103(20) City of Willoughby) (Villages of Willoughby Hills and Waite Hill). Proj. 507, Lake Co.;

O.—**S. E. Johnson Co.**, P. O. Box 29, Maumee, O., LB **$2,693,964**, est. $3,182,500, (10 bidders), Type T-35 T-71 and structures 6.758 mi. USR 25-0/38 ACI-ACIC 75-6(6)166(New) 1-1067(3) Old, (Village of Cygnet). Proj. 509, Wood Co. CD 9/21.

BUILDINGS—LB & CA

▲ **Ebasco Services, Inc.**, 2 Rector St., New York, N. Y., CA, design and constr. 700,000 sq. ft. TRANSFORMER PLANT, OFFICE and railroad siding, MUNCIE, IND. Westinghouse Electric Corp., 3 Gateway Center, Pittsburgh, Pa. CD 9/11.

(Continued on page 82)

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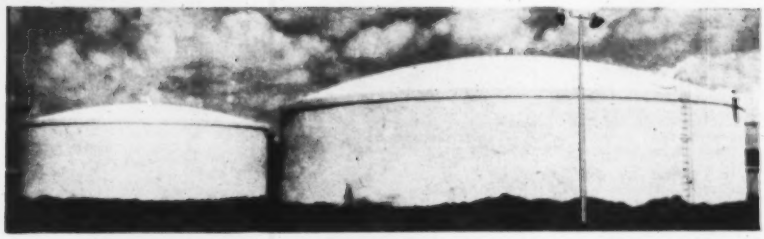

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(Continued from page 80)

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 3 Iowa
November 6 Minnesota

STREETS AND ROADS

November 3 Iowa
November 6 Minnesota
November 10 Kansas

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul, Bids opened 10/16.

Minn.—**W. D. Giertsen Co.**, 3501 Xenwood Ave. S., Minneapolis, Minn., LB **$3,181,493**, (10 bidders), bridges, approaches on Sixth St., TH 94 over Great Northern, Northern Pacific and Chicago & Northwestern R.R. tracks in St. Paul, Bridges Nos. 6755 and 6756, Ramsey Co.;

Minn.—**Thorson Constr. Co., Inc.**, 467 Hallett St., Tracy, Minn., LB **$137,969**, (7 bidders), Bridge No. 9685 (west bound) and Bridge No. 9686 (east bound) prestressed concrete slab spans, overpasses Great Northern Railway, Rock Co. CD 9/30.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

November 18 California

▲ **Wash., Tacoma**—BA After 11/5—Dpt. P. Utilities, City Hall, complete Mayfield Dam, Cowlitz River. $30,000,000. CD 9/3.

▲ **Calif., Los Angeles**—BULKHEADS WALLS, etc.—BA 11/12—Bd. Supervs. Los Angeles County, 501 Hall of Records, 8 mi. bulkheads walls and approx. 48,000 ft. sanitary sewers, Marina del Rey Small Boat Harbor, Spec. 1979-CSD. $3,000,000.

BUILDINGS—BA

▲ **Calif., Los Angeles**—COLLEGE—BA 11/13—Bd. Educ., 1425 S. San Pedro St., Phase 2, type 1, rein.-con. Pierce College addn., 6201 Winnetka St., Woodland Hills. $4,000,000. Extended date. Risley & Gould, 2502 W. 3rd St., archts. CD 10/9.

▲† **Calif., Sacramento**—HOUSING—BA On Or About 12/8—Base Procurement Office, Bldg. 3510, Chapel Annex, Mather Air Force Base, Armed Services Housing Proj. consisting 230 family housing units to be constructed at Mather Air Force Base, Inv. Nr-04-612-60-14. Plans deposit $200. Extended date. CD 10/6.

HEAVY CONSTRUCTION—LB & CA

▲ **Clyde W. Wood & Sons, Inc.**, 6900 Gujunga Ave., P. O. Box 620, North Hollywood, Calif., LB **$4,315,404**, (15 bidders), Storm Drain Bond Issue Proj. No. 21, Artesia-Norwalk Storm Drain, Unit 2, Lines A, B, E, F, G and H, Cities of Artesia, Dairy Valley and Norwalk, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Oct. 16. CD 9/21.

▲ **Robert McKee General Contractors, Inc.**, 4701 San Fernando Rd. West, Los Angeles 39, Calif., LB **$25,439,200**, (5 bidders), complex 3 and theme structure complex 4 Phase 1 for satellites, ticketing bldgs., channel interiors, Los Angeles International Airport, LOS ANGELES, CALIF. Dpt. Airports, City Hall, Los Angeles, Calif. Bids Oct. 20. CD 10/9.

▲† **Samuel N. Zarpas Inc., and Fullerton Constr. Co.**, 19156 Filer St., Detroit, Mich., LB **$2,430,000**, (17 bidders), BOMARC anti-aircraft missile launching incl. 28 launcher shelters, ordnance storage bldg., traffic check house, composite bldg., assembly and maintenance, security control and fire station, pump house, pumping station water storage tank and utilities, ENG-04-201-60-108, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Oct. 20. CD 9/14.

BUILDINGS—LB & CA

▲ **Graff, Ryberg & Garf**, Box 1204, Salt Lake City, Utah, CA **$2,310,000**, ADMINISTRATION and GENERAL SERVICE BLDG., PROVO, UTAH, Brigham Young University, Provo, Utah. Bids Sept. 15. CD 8/21.

▲ **Crown Constr. Co.**, 5059 W. Pico Blvd., Los Angeles, Calif., CA **$3,692,937**, Sylmar HIGH SCHOOL, Astoria and Borden Sts., San Fernando, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Sept. 25, awarded Oct. 13. CD 9/29, under LB.

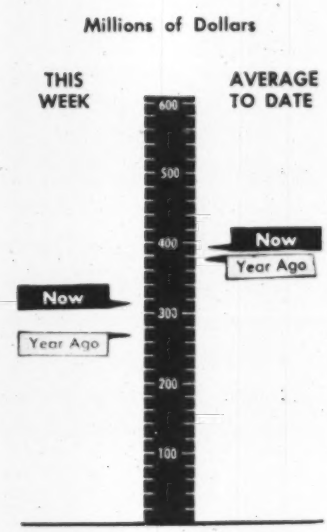
▲ **Stanton-Reed Co.**, 720 S. Palm Ave., Alhambra, Calif., LB **$3,113,000**, (8 bidders), CLASSROOM, CAFETERIA AND MENS' GYMNASIUM, Los Angeles Valley College, 13161 Burbank Blvd., Van Nuys, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Oct. 16. CD 9/29.

▲ **F. E. Young Constr. Co.**, 2141 Main St., P. O. Box 2872, San Diego 12, Calif., and **Morrison-Knudsen Co., Inc.**, 411 W. 5th St., Los Angeles, Calif., CA **$6,200,000**, 13 story steel frame OFFICE, 5 story rein.-con. GARAGE, STORES adjoining Westwood Village, WEST LOS ANGELES, CALIF. Harrison-Harrison Inc., c/o contractors, Bernhard Cardan, 8417 Beverly Blvd., Los Angeles 48, Calif., engr.

(Proposal Advertisements see p. 92 to 94)

Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

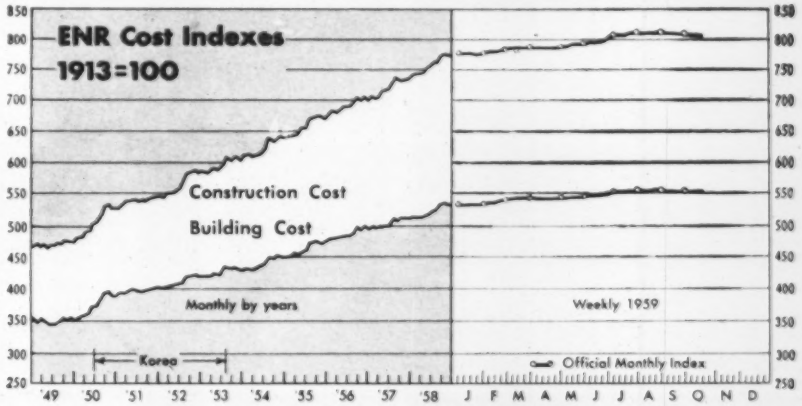
	This Week millions	Cum. 44 wks 1959 millions	Chge '58-'59 %
All Heavy Constr.	$318.5	$17,356.9	+ 4
By Ownership			
PRIVATE	177.8	8,728.7	+30
PUBLIC	140.7	8,628.2	−13
State & Municipal	113.9	6,262.1	−15
Federal	26.8	2,366.1	− 8
By Type of Work			
PUBLIC			
Waterworks	3.9	333.5	+25
Sewerage	13.2	550.8	+ 6
Bridges*	9.0	615.0	− 1
Highways	41.9	2,505.5	−20
Earthworks, Dams & Waterways	18.2	757.8	−19
Buildings:			
Excl. Housing	43.1	2,204.5	− 3
Housing	2.9	529.3	−47
Unclassified	8.7	1,142.5	− 7
PRIVATE			
Buildings:			
Mass Housing	95.3	3,949.7	+22
Commercial	35.9	1,838.9	+16
Industrial	38.8	2,490.6	+62
Unclassified	7.6	438.8	+21

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Oct. 22 millions	Cum. 43 wks 1959 millions	Chge '58-'59 %
Corporate Securities	$133.2	$3,221.3	−26
State and Municipal:			
All Except Housing	106.7	4,966.3	− 6
Housing		75.2	−34
Federal Loans	2.9	121.5	−27
Federal Aid		3,343.4	+29
Total Nonfederal	$242.9	$11,727.6	− 6
Federal Appropriations:			
Projects in U. S.		$3,564.1	−16
Outside U. S.		22.4	−51
Total New Capital	$242.9	$15,314.1	− 9



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Oct. 22 1959	% Change from Sept. 24 1959	% Change from Oct. 23 1958
Construction Cost	809.85	−0.23	+4.64
Building Cost	554.26	−0.25	+3.57

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	September 1959 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$114,415	+0.3	+1.6
By Ownership—			
Private	50,397	+0.4	+4.1
State & Municipal	50,626	+0.1	+1.0
Federal	13,392	+0.3	−4.8
By Type of Work—			
Waterworks	2,747	+2.1	+3.6
Sewerage	3,643	+0.1	+5.9
Bridges	3,337	−0.03	+0.6
Highways	12,548	−0.4	−2.8
Earthwork, Waterways	11,580	+0.2	−3.6
Public Buildings	20,661	+0.1	+2.3
Industrial Buildings	16,922	−0.4	+2.6
Commercial Buildings	22,952	+1.1	+4.4
Unclassified, Private	10,523*	+0.3	+5.9
Unclassified, Public	9,502	+0.5	−1.7

* Includes private bridges $91 million.

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1959 Sept. (millions)	1959 8-months (millions)	Percent Change from '58 Sept.	Year Cum.
Total U. S. (ENR reported)	$1,196	$13,347	−38.9	+11.9
By Ownership—				
Private	665	7,317	+32.2	+43.6
State & Municipal	417	4,986	+ 4.6	+ 0.2
Federal	114	1,044	−89.2	−44.0
By Type of Work—				
Waterworks	75	362	+374.7	−10.2
Sewerage	39	476	−17.1	− 0.1
Bridges	19	286	−21.5	− 1.9
Highways	29	1,150	−72.4	− 5.5
Earthwork, Waterways	45	181	−89.0	−67.7
Public Buildings	236	2,808	−58.7	− 3.3
Industrial Buildings	173	2,290	+95.2	+156.4
Commercial: Mass Housing	278	2,281	+100.9	+38.4
Other Building	168	1,951	−23.3	−12.7
Unclassified, Private	46	794**	−19.4	+150.7
Unclassified, Public	89	767	−69.1	−22.2

** Includes private bridges $9.1 million.

FLOW OF PROJECTS OUT OF THE BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	$735	$7,960	+ 6.9	+ 0.7
By Ownership—				
Private	387	2,947	+155.1	+34.0
State and Municipal	288	3,451	−35.7	−18.4
Federal	60	1,562	−32.6	+ 5.7

USS **American Bridge builds**

World's Longest Vertical

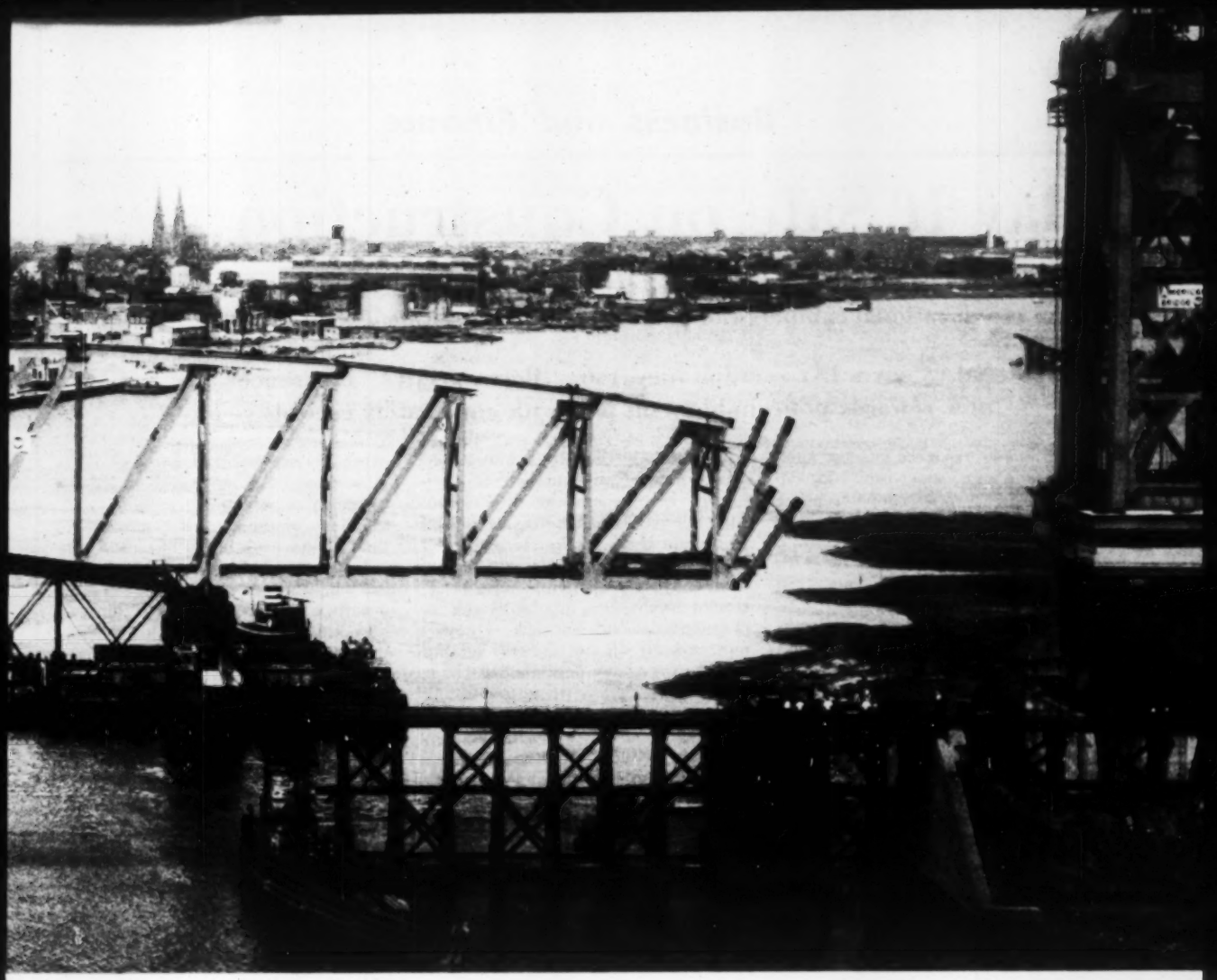
The 71-year-old swing span carrying the Staten Island Rapid Transit Railway over the Arthur Kill between Staten Island, N. Y., and Elizabeth, N. J., has been replaced by a modern lift bridge. And there's an interesting story behind the event. When the 496'6" swing bridge was built in 1888, it was the longest in existence. A record it held for many years. And it too, was fabricated and erected by American Bridge.

The imposing new bridge, with its 557'11½" thru truss vertical lift span, is also a record-breaker.

But great length is not the only feature about the new bridge. It is an imposing structure from every angle. Big, but not as heavy as it looks because most of the 1,658 tons of steel in it are USS Man-Ten; the towers are 33' x 32' in width and 163'4" high; and even the vertical lift span itself is huge, being 43'4" deep at the ends and increasing to 70' in the center.

The old bridge, incidentally, will also be dismantled by American Bridge.

American Bridge has unmatched experience in railroad bridge construction. We have the know-how, the equipment and the personnel to handle such jobs with a mini-



New lift bridge over the Arthur Kill, between Staten Island, N. Y., and Elizabeth, N. J. Owned by The Staten Island Rapid Transit Railway Company . . . Designed by Parsons, Brinkerhoff, Hall and Macdonald.

Lift Span

mum of interruption to traffic. We welcome an opportunity to discuss your bridge replacement or repair requirements. Just call or write the nearest office listed below.

USS and Man-Ten are registered trademarks

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Contracting Offices in: Ambridge • Atlanta • Baltimore • Birmingham • Boston • Chicago • Cincinnati • Cleveland Dallas • Denver • Detroit • Elmira • Gary • Harrisburg, Pa. • Houston • Los Angeles • Memphis • Minneapolis New York • Orange, Texas • Philadelphia • Pittsburgh • Portland, Ore. • Roanoke • St. Louis • San Francisco Trenton • United States Steel Export Company, New York

Play It Safe on Construction

- **Delegates at the National Safety Congress ask for a constant educational campaign to promote safety consciousness.**

- **Safety saves lives—and money, too. "Retrospective" insurance now rewards policyholders on jobs with good safety records.**

How do you make the greatest number of contractors, supervisors and construction workers safety conscious? The Construction Section of the National Safety Council posed the question, then answered it last week at the 47th annual National Safety Congress in Chicago.

One answer: Bombard employers and workers with safety literature, talks and warnings. Plenty of safety tips and data are available. The problem is to get it into the hands of those who need it most.

It is usually the subcontractor and small general contractor who needs safety help, rather than the large general contractor, committee discussions indicated. Generally, small contractors are reluctant to spend much money on safety programs and training. Therefore, safety literature should be provided free or at extremely low cost. And all safety messages should be simple and direct, whether aimed at management or workmen.

Safety in operating construction equipment was also emphasized. Earl W. Wheeler, a safety engineer with the Bureau of Yards and Docks, urged that construction men take a page from the industrial engineer's handbook.

He offered the following general machinery-safety plan:

- Break down an operator's work into individual operations.
- Analyze each operation in detail.
- Devise new methods for inherently hazardous operations.
- Safety-test the new methods.

Arthur J. Rutherford of the Corps of Engineers, Fort Belvoir, Va., blamed two general attitudes in the construction industry as the cause of "excessive" loss of life and property.

"The general concept that accidents are bound to happen on construction is ridiculous," he declared. And "too often the safety of the operator or mechanic is secondary to machinery efficiency and profits." Safety on construction equipment is the joint responsibility of the designer, manufacturer and contractor, said Mr. Rutherford.

Contractors working overseas have special safety problems, according to George Ferris, president of Raymond International, Inc. Training native help to operate U. S. machinery is difficult, he said. "On a typical piledriving job in a new area, operators must be recruited locally and trained by our superintendents and foremen. This is a most difficult job, but the only solution is to keep our key personnel in charge of the work alert to their responsibilities. To do this, all supervisory personnel are informed of our accident problems, while our safety engineers and general superintendents make regular visits to the field to hold safety meetings."

Safety engineers are an important means of making the construction industry safety-conscious.

On many large construction jobs there is a resident safety engineer, generally representing an insurance company, who administers an over-all job safety program. In effect, he serves as a safety consultant to 100 or more contractors and subcontractors who may be working on a big project during the course of construction.

"Many of these contractors carry to their future work safety ideas and attitudes we taught them on this particular job," says a resident safety engineer on a midtown Manhattan construction site. "For example, the concrete subcontractor on this job also worked on an early job we handled. On the earlier job, we practically had to ram safety down his throat. But a continuous educational campaign changed some of his attitudes. Now, on this job, he has a much better safety record. What's more, he'll save money. As his accident record improves, his insurance costs will go down."

One of the keys to a job safety program is "anticipation"—foreseeing hazards before they cause trouble. For example, before construction starts on a major building job, representatives of the insuring company, the owner of the building and the contractors map out a safety program designed to meet

College Loans Going Quickly

The government reports it's giving fast service on college housing loans.

The housing law of 1959 gave Community Facilities Administration $250 million for that purpose. By mid-November CFA officials expect to give final approval to $183 million worth of these loans—representing 180 applications. Another $45 million in applications are in final stages of processing and approval.

The fast service is possible because CFA processed loan applications while awaiting passage of the housing bill.

The low-interest loans are made to colleges and hospitals to provide housing for students and faculties. Projects range from $100,000 to $4 million—averaging about $1 million.

The interest rate set by the HHFA Administrator is 3¼% for the fiscal year ending next June 30. To take advantage of this rate, which is lower than current market rates, applicants will probably speed preparation of their projects. Before they can receive funds under the program, institutions must complete satisfactory architectural plans, working drawings and specifications, and invite construction bids.

CFA currently has $161 million in loan funds reserved for 158 projects. Geographically, they are distributed as follows:

- New York City (Northeast) Region—$30.9 million, 19 projects.
- Philadelphia (Atlantic) Region—$16.8 million, 19 projects.
- Atlanta (Southeast) Region—$18.7 million, 25 projects.
- Chicago (Midwest) Region—$33.8 million, 33 projects.
- Fort Worth (Southwest) Region—$30.1 million, 41 projects.
- San Francisco (Pacific-Mountain) Region—$30.8 million, 21 projects.

the specific hazards and problems expected on all phases of the project.

Then the basic program is printed and distributed to the general contractor and all subcontractors involved. A resident engineer is placed on the job to make daily safety inspections. Also, periodic safety meetings are held with contractors' representatives at the supervisory level and with the workers.

How do you measure the results of that kind of intensive safety program? There are such indexes as accident frequency rates and severity rates. But the best measure is dollars and cents—insurance savings to the owner or general contractor in the form of a rebate on premiums.

Rebates are possible under a comparatively new type of policy—"wrap up" or "package" insurance written on a retrospective basis. This type of policy has come into common use on large construction projects in recent years.

Retrospective insurance is taken out by the owner or general contractor to cover all contractors and subcontractors on the job. The policy generally includes both public liability insurance and workmen's compensation insurance.

When the policy is written on a retrospective basis, adjustments are made—after the job is completed. After computation, the policy owner will either get back part of the premiums paid, or pay an additional sum, depending on the job's safety record.

There are some limits on the use of retrospective insurance. Insurance laws of the various states strictly govern the use of such insurance and the specific provisions in the policy. Generally, such insurance is practical only on large jobs, $20 million or more.

But where such insurance is used, it affects construction safety two ways:

- It encourages the use of over-all job safety programs by centralizing responsibility and control in one insurance company, which then blankets the project with safety guidance.
- Because insurance savings are the direct result of the job's safety record, owners and general contractors have an incentive to promote safety consciousness among workmen, supervisors and contractors.

U.S. 'Gift' Is Engineer's Headache

A U. S. foreign aid project has resulted in a $10.7-million damage suit against Hydrocarbon Research, Inc. of New York City. The suit was filed last week in Federal District Court at Trenton, N. J., by Taiwan Fertilizer Co. of Tapei, Formosa.

The Formosan company says Hydrocarbon "misrepresented technical competence" in obtaining the contract for design and construction supervision of a $25-million to $30-million fertilizer plant at Nankong, Formosa.

The plant was completed in March, 1958, but up until August of this year has produced only 2,000 metric tons of urea. It should have produced more than 128,000 metric tons, Taiwan Fertilizer says.

Hydrocarbon has not yet filed an answer to the charges, but a spokesman for the company told ENR the suit indicates some of the weaknesses in foreign aid programs.

"This case is like building a four-engine jet airplane and then turning it over to a novice pilot," according to Dr. Edwin T. Layng, executive vice president of Hydrocarbon. "The real problem is that there are not enough trained Chinese engineers and technicians in Formosa capable of operating the plant," Dr. Layng says.

Hydrocarbon was hired to do the design engineering and supervise construction of the ammonia plant. Taiwan Fertilizer was the builder and operator. After completion in March, 1958, the plant was running at over 90% of capacity, says Dr. Layng. "Continuous operations were not possible because a urea plant being constructed under a subcontract was not completed until September of this year."

From the start, Hydrocarbon had warned Taiwan Fertilizer and the International Cooperation Administration that the "Chinese did not have the necessary trained men to operate and maintain the plant," Dr. Layng says.

"Most of the personnel were recruited from rice paddies," he says. The problem became more acute when the Nationalist Chinese government refused to exempt from compulsory military service the men who were eventually trained by Hydrocarbon personnel.

Dr. Layng says the company had only 14 men on the job, but at least 100 were needed for proper supervision and effective training. "Funds for the purpose were denied by the two governments."

Hydrocarbon says it knows the plant will operate and cites a similar plant of almost identical size it built in Philadelphia. "It has been in daily operation for over five years," the Hydrocarbon executive emphasizes.

Better Data Wanted

Broader reforms urged for U. S. construction statistics

Government construction statistics are still burdened with "too many estimates and judgments." That's the conclusion of the Committee on Construction Statistics of the Federal Statistics Users' Conference.

It therefore recommends that the federal government start on a long-term improvement program in the gathering of construction information. The committee singled out two areas for particular criticism.

It described the absence of a reliable cost index as a "serious gap" in federal construction data. To gauge the effects of construction costs on inflation, the committee recommended an immediate start on a new index to be in operation by fiscal year 1963 or 1964.

Other criticism was aimed at poor information on maintenance and repairs, described as the most inadequate data in the construction field. Maintenance and repairs are estimated at $20 billion per year, but some statisticians think this is one-third to one-half under the actual figure.

Only residential additions and alterations are reported monthly, but the committee urges that every type of construction be included.

Other recommendations:

- Regular surveys of new housing characteristics.
- Better figures on housing starts, consistent with data of the Census of Housing and National Housing Inventory data.
- A regular National Housing Inventory continued between census years.

British Invade New York For $25-Million Deal

British capital will play a major role in construction of Grand Central City, the $100-million, 2.4-million sq ft office building scheduled for construction in midtown New York City.

City Centre Properties, Ltd., a major English real estate and building organization, says it will invest up to $25 million in the project on an equal share basis with the New York interests headed by Erwin S. Wolfson.

Jack Cotton, chairman, City Centre chairman, says the $25 million has been approved by the British government, which restricts the amount that can be taken from the country.

5 PAVING RECORDS IN 14 MONTHS!*

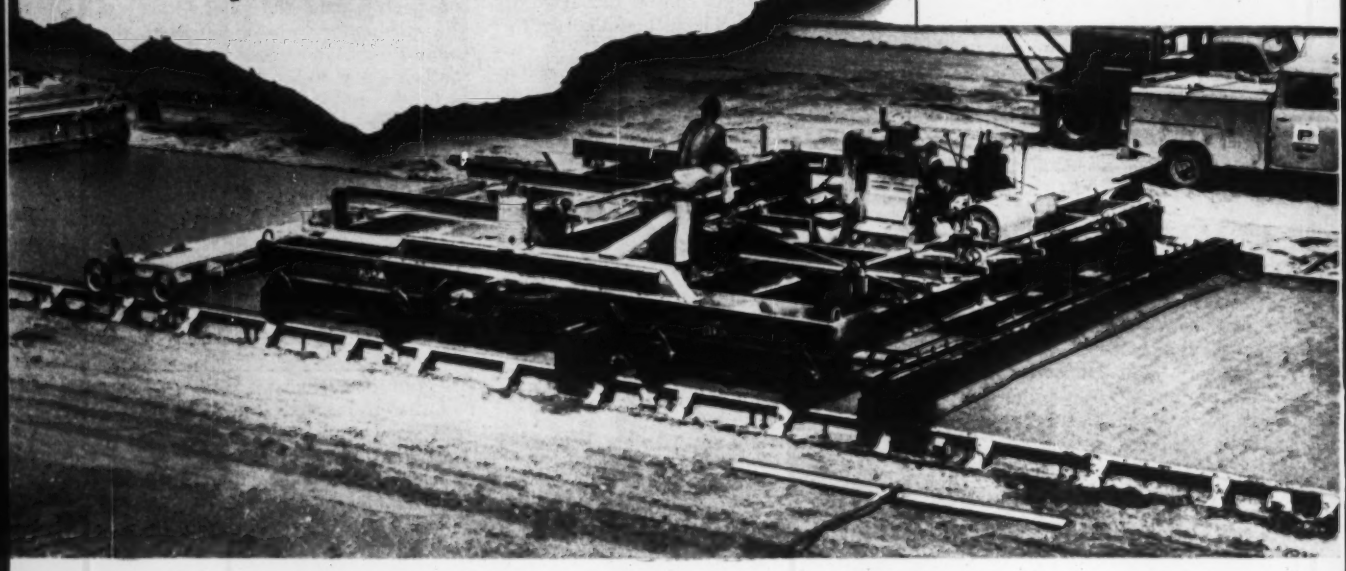
using Heltzel Flex-plane Combination Finisher-float Machines

** Paving records established using the Flex-Plane "Combination"*

1. **SARGENT CONSTRUCTION CO.,** Saginaw, Michigan, July,'58. 5787' of 9" x 24' slab in 12½ hours.
2. **DENTON CONSTRUCTION CO.,** Grosse Pointe Woods, Michigan, Aug. '58. 6029' of 9" x 24' slab in 12½ hours.
3. **KOSS CONSTRUCTION CO.,** Des Moines, Iowa, June '59. 6067' of 9" x 24' slab in 12½ hours.
4. **PIERSON CONSTRUCTION CO.,** Saginaw, Michigan, August, '59. 6244" of 9" x 24' slab in 12 hours.

Canadian Record:

5. **HURON CONSTRUCTION CO.,** Chatham, Ontario, July, '59. 5290' of 9" x 12' slab in 12 hours.



Michigan contractor finishes 6244 feet of 9"x 24' pavement in 12 hours...paves 5 miles in 5 consecutive working days!

The most recent of 5 paving records has been achieved by Pierson Contracting Company of Saginaw, Michigan. From Saturday, August 8th through Thursday, August 13th, they paved 26,526 feet of 9" x 24' pavement on U. S. 12 near Hartford, Michigan. Total hours worked—52.

On Tuesday, August 11th, 6244 feet were paved in 12 hours for the longest single day's run—and another new U. S. paving record.

Speed is not the final measure of a finishing machine's worth. But the ability to produce a finish that meets or exceeds State and Federal specifications, plus the capacity to do it faster and more economically, is important to every paving contractor. Several of these record-setting contractors have stated that their record runs would not have been possible without their "Combinations". Further proof that top-rated contractors depend on Flex-Plane top-rated finishing equipment.

If you haven't seen the record-breaking 1959 Flex-Plane Gas-Electric Combination Finisher-Float Machine, call your Flex-Plane Distributor today or write direct to:

(above) Pierson's record-setting "Combination" at work on U. S. 12, Hartford, Michigan.

(below) Huron Construction's '59 Model Gas-Electric "Combination" setting new Canadian record.

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Taft-Hartley Act on the Carpet

- **It hasn't helped in the steel deadlock. Now a host of "improvements" is under discussion.**
- **All suggested changes point toward a heavier federal hand in settling labor disputes.**

The steel dispute has put the Taft-Hartley Act on the legislative carpet once again—this time for what it does, or more important, what it doesn't do to halt major industrial strikes.

The apparent need for new machinery to cope effectively with critical labor disputes became Washington's number one topic last week. And the discussion is apt to go on, to the consternation of both labor and management, until after Congress reconvenes in January—although settlement of the steel dispute, would take a lot of the heat out of the issue.

Current legislative proposals range all the way from government-dictated settlements to voluntary systems that would put public pressure on employers and unions to reach agreement on their own.

All the proposals add up to a loss of freedom in collective bargaining and to further federal interference in labor-management relations.

Even before the steel injunction went to the Third Circuit Court of Appeals last week, it was apparent that the emergency provisions of the law would contribute little to the settlement of the dispute. What the law offers, observers say, is a temporary remedy and not a cure—and even that is too little and too late.

The legal arguments and rulings in the lower courts have demonstrated since then that the law means different things to different people and may even call for an unconstitutional mixing of executive, legislative and judicial powers.

Some think, for example, that strike situations inimical to the public welfare are synonymous with those that "imperil national health and safety"—the latter being the condition the law requires to justify an injunction.

These are questions for the Supreme Court to answer. But only Congress can answer the three fundamental questions that will still remain: How do you assure good faith bargaining? How can you deal effectively with its failure? When do you begin?

President Eisenhower still is reluctant to change the system.

Despite the President's attitude, Labor Secretary James P. Mitchell favors adding another settlement step to Taft-Hartley. Whether he convinces the White House on this depends, most likely, on whether a steel emergency still exists when Congress meets in January.

Even if it does not, Sen. John F. Kennedy (D., Mass.) plans Senate Labor Committee hearings on the question of emergency strikes. In the event the dispute is voluntarily settled, these aren't likely to produce much legislation.

However, the steel strike has at least opened the door to further federal intrusion on major bargaining.

The Labor Secretary proposes that fact-finding boards, such as the steel emergency board headed by George W. Taylor, be moved into industry-wide negotiations. But, he would have the President appoint such boards before the dispute becomes critical.

Mr. Taylor went beyond the board's traditional fact-finding role to mediate the dispute, and even came close to suggesting the range of settlement terms. Mr. Mitchell's plan would also have the boards operate before the public in open hearings, forcing the parties to put their case on the public record. If requested to do so by both sides, the board would recommend settlement terms.

This system, Mr. Mitchell feels, would help the public to understand the contest and bring pressure on both sides to work out a solution.

These are the other proposals now being seriously talked about:

• **Make voluntary arbitration an extra Taft-Hartley step.** This would be formally proffered to both sides as part of the law's legal processes. Professional arbitrators favor this approach as a way to keep the responsibility on both sides but give them an outside helping hand.

Mr. Taylor's steel emergency board suggested this to industry and union negotiators in steel but neither side would buy it. However, backers of the Taft-Hartley route believe it might work if written into the law as one of the settlement steps.

• **Invoke compulsory arbitration if the strike resumes at the end of an 80-day injunction.** This is the plan of Sen. John Sherman Cooper (R., Ky.), who feels it would pressure the parties to settle voluntarily because of the threat of a dictated settlement.

This is probably the least popular of the suggested settlement procedures. Mr. Mitchell views the process as a federal "club" against labor and management that would inevitably lead to wage and price controls.

• **Set up a board of "accountability" before which labor and management would appear to justify their proposals**—unions for higher wages and management for higher prices. This would be an extension of the price notification proposal of Sen. Joseph D. O'Mahoney (D., Wyo.) which would require the companies to justify any price increase by first giving notice and explanation of an impending hike.

• **Put labor unions under the anti-trust laws.** This isn't a new idea and is unlikely to make headway in Congress. This plan would break up union "monopolies" and ban industry-wide strikes that cause national emergencies.

Neither management nor labor favor much that has been proposed so far. They prefer, of course, to reach their own solution in negotiations.

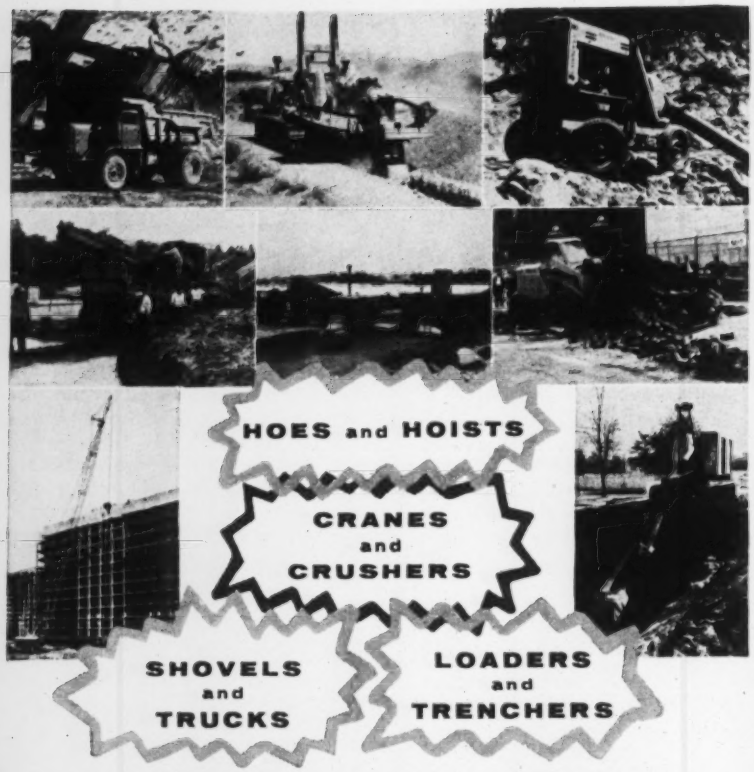
Both sides are adamantly opposed to compulsory arbitration. But their reactions to other suggestions are far from identical. When it comes to Presidential boards making recommendations, labor unions are more in favor of this approach. Management feels that it has been burned by such systems in the past.

When it comes to voluntary arbitration, either side might favor such an approach, depending on the dispute.

This difference of attitude toward labor-management disputes' machinery is causing much support for a plan not to write definite rules, but to provide for methods that might help in a particular contest.

The Taft-Hartley law provides that the President shall make recommendations to Congress at the end of the 80-day injunction. And if the strike is still on, the White House may suggest a particular way out of the steel dispute and not get into an overhaul of the emergency provisions of the law. This is apparently what Sen. Robert Taft, who also advocated a minimum of federal interference, had in mind when the provision was originally drafted.

(*Labor continued p. 90*)



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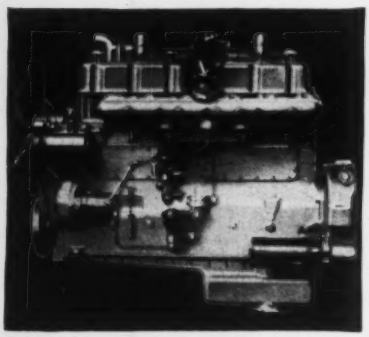
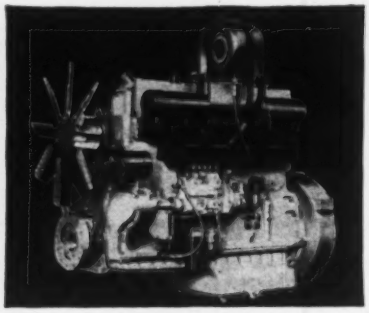
50—1235 hp DIESEL, GASOLINE, LPG

Specially adapted to general contractors' needs, Waukeshas handle every load demand easily and eagerly, and with power to spare. All Waukeshas are easy to start and operate; they will turn out more work, steadily and speedily. Economical to fuel and maintain. 50 to 1235 hp. Get the complete Waukesha performance story from your Waukesha distributor.



Waukesha gasoline engine—145-GZB—5⅜" x 6"; 817 cu. in.; 240 max. hp. Other models, 50 to 980 hp; bare engine or complete power units.



Waukesha Diesel—WAKDBS (turbocharged) 6¼" x 6½", 1197 cu. in., 400 max. hp. Other models, 50 to 1235 hp; bare engine or complete units; normal or turbocharged.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

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Glen Canyon Strike

It began before the steel strike and still goes on

The strike that shut down construction on Glen Canyon Dam in July was still unsettled last week. It began July 6, nine days before the steel strike.

General contractor Merritt-Chapman & Scott and the five striking unions have resumed their bargaining sessions, however, and there were unconfirmed reports that the negotiations were based on union demands for wage increases ranging from 68 to 75 cents an hour.

Those were the same demands that M-C&S earlier submitted to the Bureau of Reclamation, which is required by the project contract to pay 85% of increased wage costs incurred on the job. The bureau has refused to commit itself in advance of a contract.

The dispute stems from the general contractor's refusal to accept the statewide, master labor agreements negotiated this year by local unions and contractors.

One of the agreements was negotiated on a three-year basis by the Associated General Contractors and the laborers, teamsters, carpenters and cement masons. Effective June 1, it granted immediate increases of 18 to 25 cents an hour, with deferred increases that raise the three-year totals to a range of 58 to 65 cents. The contract also grants subsistence pay of $6 a day for work 30 miles from free zones in 12 Arizona cities.

M-C&S, which did not participate in the negotiations, offered to accept 19 of the contract's 20 provisions. It refused to accept the subsistence clause, which would apply to work on the dam. M-C&S said an earlier arbitration proceeding had relieved it from paying any form of subsistence on the project because of housing facilities and other living accommodations now available.

The state-wide contract with the four basic trades was followed by a similar agreement with the operating engineers. It granted hourly wage increases of 22½, 24 and 26 cents over the three-year period and contains a sliding subsistence scale of $2 to $6 a day, which was also unacceptable to M-C&S.

The five unions dropped the subsistence demand during subsequent negotiations with M-C&S, but proposed a 50-cent hourly wage differential for work on the dam. This differential, when added to the state-wide 1959 increases of 18 to 25 cents an hour, results in the 68- to 75-cent hourly wage demands on which current negotiations are reportedly based.

Plumbers Minus Tools Equals Strike, Says Boss

A plumbing contractor in Toronto has claimed that a group of union plumbers engaged in an illegal strike when they showed up for work without their tools.

The men had removed their tool kits from the job site after two kits were stolen. They wanted the company to replace the stolen tools.

After the company asked the men to bring back their tools, 13 of the 15 workers showed up without their tools. The men were then told there was no work for them.

The company, in an Ontario Labor Relations Board proceeding, has charged that a representative of the plumbers union encouraged an illegal strike by telling the men not to work until the tools are replaced.

Labor in Brief . . .

• **Whose work is it?**—A jurisdictional dispute between carpenters and iron workers over who should do woodwork on a stadium under construction for the University of Pennsylvania stopped work this month on the university's $30-million construction program.

• **A picketing dilemma**—The National Labor Relations Board has requested an injunction against building trades' picketing of a general contractor on a factory construction job in Rhode Island. Board said the unions failed to identify the general contractor as the target of picketing and induced workers of subs to strike in an effort to force a boycott of the general.

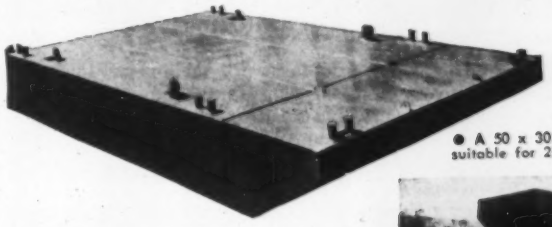
• **A common problem**—Disagreement over work rule changes, currently spotlighted in the steel and pier disputes, remained one of the stumbling blocks last week to a settlement of a strike that has shut down the major U. S. copper mines for the last 10 weeks.

• **What does it mean?**—National Labor Relations Board member John H. Fanning says of the new labor law: "Seldom has legislation packed so many apparently close and difficult questions into such a small amount of type." He feels it is difficult, if not impossible, to forecast the "precise changes" the law makes in labor-management relations.

(Labor continued p. 92)

MANITOWOC

SECTIONAL BARGES



• A 50 x 30 foot four-section barge suitable for 2 yard dragline or clam.

★ Designed specifically for the contractor who has need for transporting his floating equipment in a short time with the least effort and expense. By quickly and easily bolting together any number of sections, the contractor has an extremely adaptable piece of equipment to provide an economical solution to any floating problem. Dragline, trench hoe or clamshell dredging, pile driving, crane lifting, pumping, pipe laying or floating equipment are some of the many uses of the versatile Manitowoc Sectional Barge.

Write for additional information and prices. Sold direct or through Manitowoc Engineering Corporation distributors.

• Easily transported by rail or highway.

• Assembled barge with crane and spuds.

MANITOWOC SHIPBUILDING, INC.

MANITOWOC, WISCONSIN

Kinnear Rolling Doors

Kinnear Steel Rolling Doors *introduced* the **single-shaft torsion spring.** It assures *uniform* spring action . . . *uniform* regulation of operating ease from a **single adjustment wheel.** Many other special features make Kinnear your best door buy! Send for catalog!

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Authoritative directory packed with useful information. Where these building are, where the new ones will be, what they consist of, what they are used for, what their space and design needs are, where to buy specialized equipment. Lists, directories, addresses, contacts, features.

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ARENA, AUDITORIUM & STADIUM GUIDE
Dept. E-1
2160 Patterson St. Cincinnati 22, Ohio

Selling Contract Maintenance

CIJC has started a campaign to get more industrial maintenance work for construction firms

A new construction salesman is trying to stem the tide of do-it-yourself maintenance work by industrial and commercial owners.

The objective is to make more of this market available to contractors and their employees. Maintenance and repair volume is rated at more than $20 billion annually.

The salesman is the relatively new Construction Industry Joint Conference, made up of labor and management representatives. CIJC has just published a brochure covering the merits of maintenance by contract, that seeks to sell the idea to firms throughout the country.

The basic message: **"We build it. We can maintain it for less."**

Publication of the brochure is one of the first tangible achievements of the conference, which was formed by national contractor associations and international building trades unions last April. Basic purpose of the conference is to promote the welfare of the building and construction industry within the framework, however, of the public interest. Promotion of the contract system and improved performance and productivity by contractors and workers are among its goals.

Springboard for the CIJC sales message to owners is the fact that some 150,000 contracting firms and three million construction workers, under contract construction, put into place each year more than $55 billion worth of new construction and $20 billion in modernization, maintenance and repair. Together, they account for 15% of the national product and 5% of the nation's productive force, says CIJC.

The brochure tells industrial management that this same skilled and competent team, working under the cost-saving contract system, is "now available to you in meeting your maintenance problems." The effort reflects the common interest construction labor and management have in industrial union encroachment on the work jurisdiction of building trades unions—a problem that has often rocked the AFL-CIO merger.

CIJC's main agruments in support of maintenance by contract are that the contract system is the cheapest, fastest, easiest, safest and most flexible way for owners to handle maintenance.

Owners who use it avoid the cost-analysis problem that arises when they do the work themselves, CIJC points out. They do not run the risk of pushing up their unemployment compensation costs by expanding and contracting their own work forces to meet the peaks and valleys of their maintenance needs.

They avoid a host of internal labor problems, such as personnel dislocations, unnecessary training and upgrading of unqualified workers into skilled jobs, and seniority problems encountered in layoffs and recalls. And they are not compelled to purchase and maintain expensive, specialized equipment for infrequent use.

CIJC says the industry is well-equipped to handle, with a minimum of cost and inconvenience to owners, all or any part of the work necessary to keep the facilities it builds in operating order. During the last 10 years, according to CIJC, contractors and unions have encountered and solved "many problems" in new construction, major repair, modernization, alteration and maintenance work. And, as a result, they have improved the industry's services in the many specialized fields that comprise efficient maintenance.

The brochure describes three of the principal types of maintenance contracts now in use—modernization, supplemental maintenance and continuing maintenance. But it advises owners that there are many different kinds of contractual arrangements from which they can select the one that best fits their particular needs.

CIJC suggests that owners consult contractors for information and advice on how to accomplish their particular maintenance objectives, from turnarounds, major repairs and revamps to routine maintenance work.

Overseas Project Hit By Unauthorized Strike

Work was almost stopped earlier this month on the $50-million Esso oil refinery and terminal project at Milford Haven, Wales, when nearly 75% of the 200 construction workers on the project walked off their jobs in an unauthorized strike.

Workers said the strike was in protest "against management's attitude toward the trade unions," thereby echoing the intangible issues involved in the American steel dispute.

Prime contractor, Foster Wheeler, Ltd., said the strike was "illegal."

OFFICIAL PROPOSALS

Bids: November 24, 1959

Furnishing and Delivery of Rails and Accessories for the Lewiston and Tuscarora Power Plants and the Waterways Intake Gate Transfer Car

POWER AUTHORITY OF THE STATE OF NEW YORK
NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
SPECIFICATION NO. PA-N-23035
NIAGARA CONTRACT NO. NP44

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York, of the rails and accessories for the Lewiston and Tuscarora Power Plant and the Waterways intake gate transfer car until 10:30 A.M. Eastern Standard Time on the 24th day of November, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating and delivery thereof of approximately 760 tons of rails and accessories for the Lewiston and Tuscarora Power Plants and the Waterways intake gate transfer car.

Delivery of the above items shall be completed on or before April 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposals Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5251) will be received at Lindsay, California, until 10 a.m., Pacific Standard Time, December 2, 1959, for furnishing labor and materials for Earthwork, Pipelines and Structures including Pumping Plants, Lateral 99.4 and Sublaterals, Tea Pot Dome Water District, Friant-Kern Canal Distribution System, Central Valley Project, California. Location Porterville, California, in Tulare County. Principal items are 83,500 cu. yds. excavation for pipe trenches; 85,600 lin. ft., furnishing and laying pipe; furnishing and installing 15 pumping units; and other work. Completion time 400 days. For particulars, address Bureau of Reclamation, P. O. Box 525, Lindsay, California; P. O. Box 2511, Sacramento, California; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5252) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, December 1, 1959, for furnishing one (1) 75-ton, single trolley, motor-operated traveling crane for machine shop at Glen Canyon Dam, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: November 19, 1959

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 19th day of November, 1958, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

STATE OF NEW YORK — DEPARTMENT OF PUBLIC WORKS — ALBANY, NEW YORK
LETTING OF NOVEMBER 19, 1959

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 333 Broadway, Albany 1, New York						
Greene (Rte. 23)	FARC 59-153	Hunter-Windham, Pt. 2, S.H. 797 Cairo-Windham, Pt. 4, S.H. 5583 Cairo-Windham, Pt. 3, S.H. 9053 Project F-1159(3)	4.96	Asph. Conc. Pavt. = 4.91 Miles; Misc. Work = 0.05 Mi. R.C. Slab Bridge 25.1' Sp. R.C. T-Beam Bridge 36.3' Sp. Comp. Beam Bridge 43.6' Sp.	$58,000 Plans $5	$1,073,000
Rensselaer (Rte. 22)	C.R. 59-4	Center Berlin-Petersburg, S.H. 1421 (Cemetery Shown on R.O.W. Map 111, Parcel 179)	....	Removal of Human Remains	$70 No Plans Proposal Only $2	1,300
Rensselaer (Rte. 22)	FARC 59-152	Center Berlin-Petersburg, S.H. 1421 Steebentown-Center Berlin, S.H. 8163 Petersburg-North Petersburg, S.H. 8039 Project F-257(4)	6.98	Asph. Conc. Pavt. = 6.94 Miles; Misc. Work = 0.04 Mi. R.C. Twin Box Br 21' Sp. R.C. Slab Br. 30.5' Sp.	$90,000 Plans $5	1,687,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rtes. 12 & 12C)	R.C. 59-155	Marcy Hill-Trenton, S.H. 931 Whitesboro-Trenton, S.H. 5325	....	Removal of 169 Trees at Var. Locations	$700 Plans $5	13,000
Oneida (Rte. 46)	R.C. 59-158	Durhamville-Rome, S.H. 1157	7.38	Asph. Conc. Type 1A Pavement	$62,000 Plans $5	1,098,000
DISTRICT No. 3, F. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland, Onondaga & Oswego	R.C. 59-156	Various State Highways on Rtes. 5, 11, 13, 41, 49, 3, 92, 20SY, 257 & 281	....	Removal of 198 Trees	$600 No Plans Proposal Only $2	11,000
Onondaga (Int. Tour. Rte. 81)	FISH 59-23M	Interstate Route 505 (Nedrow to Tully) FISH 56-11 and FISH 56-12 Project I-81-2(28)67	11.47	Misc. Work: Roadside Devel. Drain., Fenc. & Maint. Area	$28,000 Plans $5	516,000
Tompkins (Rte. 38)	FARC 59-130	Groton Village, S.H. 1002 Project F-610(7)	0.27	Asph. Conc. Type 1A Pavt. R.C. Twin Box Br. 20'	$8,000 Plans $5	144,000
DISTRICT No. 4, R. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Genesee & Monroe (Rte. 19)	R.C. 59-159	Lake, Part 1 (Brockport-Sweden), S.H. 171 Lake, Part 2 and Fourth Section, S.H. 492 Leroy-Brockport, Pt. 4, S.H. 1755	4.67	Asph. Conc. Pavt.	$27,000 Plans $5	490,000
Orleans (Rte. 104)	R.C. 59-157	Gaines-Murray, Pt. 1, S.H. 8237 Gaines-Murray, Pt. 2, S.H. 5697 & Ridgeway-Gaines, S.H. 8202	4.50	Asph. Conc. Pavt. Type 1A = 4.47 Mi. Misc. Work = 0.03 Mi. R.C. Triple Open Box Br. 50.9'	$35,000 Plans $5	644,000
DISTRICT No. 5, E. G. H. VOLKMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie	FAC 59-19	City of Buffalo: Kensington Expressway Arterial Highway, Sect. 1, Cont. H: Hickory St. to E. Utica St.) Project U-377(17)	1.69 (0.73 Acr.)	Asph. Conc. Pavt. = 0.73 Mi. Grad, Walls & Water Lines = 1.39 Mi. Misc. Work = 0.30 Mi. 5 Hy. Sepn. Comp. I-Beams 2 Sp. 154.2', 2 Sp. 158.3', 4 Sp. 183' 2 Sp. 151.3' and 2 Sp. 118.9'; 2 Ped. Overpass I-Beam with Conc. Slab 4 Sp. 206.3', 3 Sp. 151.1'	$210,000 Plans $10	3,803,000
Niagara	FASS 59-25	Carmen Road, Pt. 3, Co. Rd. 131 Project S-573(1)	3.04	Asph. Conc. Pavt.	$18,000 Plans $5	335,000
DISTRICT No. 6, J. H. THOMAS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany (Rte. 21)	R.C. 59-112	Andover-Alfred Station-Almond, S.H. 5502	3.17	Asph. Conc. Pavt. = 3.16 Mi. Misc. Work = 0.01 Mi.	$27,000 Plans $5	489,000
Steuben (Rtes. 15 & 17)	FARC 59-154	Painted Post-West City Line of Corning, Pt. 1, FASH 59-10, Corning-Painted Post, S.H. 5026 Proj. U-225(17); U-5803(13)	0.90	Electrical Lighting Facilities	$2,800 Plans $5	50,000
Steuben (Rte. 414)	R.C. 59-160	Corning-Post Creek, S.H. 1745A	3.18	Asph. Conc. Pavt. = 3.16 Mi.; Misc. Work = 0.02 Mi. 3 Brs. R.C. Twin Box 23.1' Sp. 26.8' Sp. 23.5' Sp.	$50,000 Plans $5	887,000
Yates (Rte. 14)	R.C. 59-114	Starkey-Dresden, Pt. 2 S.H. 8553	8.49	Asph. Conc. Pavt. Widen. & Repair Exist. 12' Sp. I-Beam Br. 719.9'	$100,000 Plans $5	1,850,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton (Rtes. 348 & 9B)	R.C. 59-161	Rouses Point Village, S.H. 5228 Rouses Point-Canadian Line, S.H. 5337 Rouses Point Village-International Line, S.H. 9225	1.23	Reinf. Conc. Storm Sewer Pipe	$9,000 Plans $5	159,000
Clinton	FASS 59-26	Peasleeville Road, Co. Rd. 16 Project S-5490(1)	4.33	Bit. Double Surf. Treat. Pavt. R.C. Twin Box Br. 32.3'	$28,000 Plans $5	497,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Rockland	PIP 59-1	Palisades Interstate Parkway Sect. 2 and Part 1 (N. J. St. Line to Rte. 202)	14.62	5' Aluminum Chain Link Fence	$8,000 Plans $5	140,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango	FAC 59-18 FASH 59-24	City of Norwich: East Main Street Arterial Highway East River Road State Highway Project U-620(11)	1.45	Asph. Conc. Type 2B = 0.86 Mi.; Asph. Conc. = 0.57 Mi. Misc. Work = 0.02 Mi. Br. 3 Sp. Comp. I-Beam 201.6'	$60,000 Plans $5	1,091,000
Schoharie (Rte. 146)	FARC 59-150	Gallupville-West Township, S.H. 8481 Project S-820(2)	1.84	Asph. Conc. Pavt.	$21,000 Plans $5	421,000
DISTRICT No. 10, M. E. GOLL, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Kings (Int. Tour. Rte. 278)	FIGE 59-1	Interstate Route Connection 512 Gowanus Expressway, Cont. 1A: Third Ave. at 60th St. to Seventh Ave. 65th St. to 92nd Street) Project I-278-1(44)	2.07	Demolition of Buildings	$55,000 Plans $5	1,003,000

(Continued on following page)

(Continued from preceding page)

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
Nassau	PSC 7277	Elimination of Grade Crossings of the Long Island Railroad (Main Line and Central Branch) with Carnation Ave., Tulip Ave., Tyson Ave. and Plainfield Ave. in the Village of Floral Park	2.42 (1.48 Acc.)	Railroad Track Relocation and Misc. Work = 2.42 Mi. Asph. Conc. Pavt. = 1.48 Mi.; 8 Plate Girder R.R. Crossings 130.7', 177.4', 177.4', 64', 64.5', 80.7', 75.2' and 65'; 3 R.C. Slab Pedestrian Sub. Crossings 17.2', 10' and 10'; Floral Park Viaduct R.C. Slabs 1047.5'	$400,000 Plans $10	7,116,000
Queens	B.P. 59-77	Rockaway Beach (Beach 62nd Street to Beach 70th Street)	....	Four Stone Groins Beach Protection	$45,000 Plans $10	870,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Sudan Railways
Steel Bridge over the River Lol

REPUBLIC OF SUDAN

Tenders are invited for the fabrication, supply and shipment of five identical high tensile steel spans for the Bridge over the River Lol to carry single line rail traffic; the span between centres of bearings is to be 108 feet.

All five spans must reach Port Sudan by 31st July 1960.

Recognised steel bridge fabricators wishing to tender can inspect the Contract Documents at the offices of the Consulting Engineers, Messrs. Coode and Partners, Abbey House, 2 Victoria Street, London, S.W.1, and from whom the Contract Documents will be available shortly on payment of the sum of £25.

Tenders for the bridge must be submitted in duplicate to the General Manager, Sudan Railways, c/o Messrs. Coode and Partners.

Bids: November 24, 1959

The Construction of
Sanitary Sewers—Contract No. 1

Sealed bids will be received by the Village of Washingtonville, Columbiana County, Ohio, at the office of the Clerk until Twelve (12:00) O'clock noon (Eastern Standard Time) November 24, 1959 and then publicly opened and read aloud for the construction of

Contract No. 1 Sanitary Sewers.

The proposed work designated as Contract No. 1 Sanitary Sewers consists of the construction of approximately 11,500 lineal feet of vitrified pipe sewers varying in size from 8 to 12 inches in diameter, and 1150 lineal feet of 4 inch C.I.P. force main and all appurtenances.

Copies of the plans and specifications and blank proposal may be obtained or examined at the office of the Village Clerk after October 28, 1959. Payment in the amount of Twenty-Five ($25.00) Dollars will be required for each set of plans and specifications taken from the above office. Check in payment for the plans and specifications shall be made payable to the Village of Washingtonville, Ohio.

The full amount of the deposit for plans and specifications will be refunded upon return of the same in good condition within thirty (30) days of bid opening date.

Each proposal shall contain the full name and address of the party, or parties, making the same and all persons interested therein, and shall be accompanied by a certified check, bid bond or draft on a solvent bank in the sum of five (5%) percent of the amount bid and made payable to the Village of Washingtonville, Ohio, or by a proposal bond signed by a surety company authorized to do business in Ohio, as a guarantee that if the bid is accepted a contract will be entered into and the performance of it properly secured by a one hundred (100%) performance bond.

No proposal shall be entertained unless made on the blanks attached to the bound document and furnished by the Village previous to twelve (12:00) o'clock noon, (Eastern Standard Time) on the day specified.

All work under Contract No. 1 will be awarded to one bidder with the lowest and best total bid price.

No bidder may withdraw his bid for a period of forty-five (45) days after the date of opening date.

The Village reserves the right to reject any and all bids, waive any informalities or irregularities in the bids received and to accept the lowest and best bid.

THE VILLAGE OF WASHINGTONVILLE, OHIO
By Floyd Culler, Mayor
and Margaret E. Spear, Clerk

Bids: November 12, 1959

Benjamin Franklin Bridge
Contract No. 25-A

DELAWARE RIVER PORT AUTHORITY
of the
COMMONWEALTH OF PENNSYLVANIA
and the
STATE of NEW JERSEY
Administration Building
Camden, New Jersey

Sealed bids will be received for "Fault Indicating System and Rehabilitation of Existing Electrical System" for the Benjamin Franklin Bridge, known as Contract No. 25-A, at the office of the Secretary of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey, until 2:00 P. M., Eastern Standard Time, Thursday, November 12, 1959, at which time and place they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon the deposit of $10.00 check, which will be remitted upon receipt of bid or the return in good condition of the copies so taken, within thirty days after the opening bids.

Each proposal must be accompanied by a certified check in the sum of $10,000, payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the Contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the Work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the Contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOHN M. McCULLOUCH
SECRETARY

Bids: November 17, 1959

Contract EXD-120.071

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
ALTERATIONS TO ROOMS 1508, 1554 AND 1558
CONTRACT EXD-120.071

Sealed proposals for performing alterations, including the furnishing and installation of air conditioning equipment, on the fifteenth floor of the Port Authority Building at 111 Eighth Avenue, 15th Street, New York 11, N. Y., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, November 17, 1959, at which time said proposals will be opened and read in Room 1108.

Contract documents may been seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set (or not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, October 29, 1959

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Civil Engineers experienced in design of sanitary engineering projects or in related fields, including one experienced and qualified specification writer. Mid-West location. Please send complete resume. P-2556, Engineering News-Record.

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General Superintendent. To take over our field forces. We are looking for a man that can supervise foreman and superintendents as well as train new men. Our work is in the heavy engineering work, sewerage and water treatment plus several missile contracts. Location: Midwest. P-2840, Engineering News-Record.

Office Engineer. We are interested in a man to do Quantity Take-off and to take some of the paper work and general office work off the managers hands. Location: Midwest. P-2846, Engineering News-Record.

Graduate engineer with design experience in hydraulics, hydrology, flood control, hydroelectric and/or allied fields. Permanent employment with large midwestern consulting firm. Send resume and salary requirements to P-2710, Engineering News-Record.

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Job Superintendent—Project Manager. Expe- rienced in handling Construction & Administration of Federal Projects. Some Travel required. Submit complete resume of education, experience, salary requirement and recent photograph to P-2897, Engineering News-Record.

Project Engineer—Experienced in heavy con- struction; underpinning, pile driving, cofferdams, caissons, etc. Travel required. Send resume and salary requirements. P-2901, Engineering News-Record.

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(Continued on the following page)

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• POSITIONS VACANT
(Continued from opposite page)

Civil Engineer—presently registered or capable of becoming registered in Missouri; to join young expanding firm in the photogrammetric field. Some client contact, some field work and design. Excellent future for ambitious man. Furnish resume and salary requirements. P-2903, Engineering News-Record.

Superintendent Illinois building construction company, state education and experience in reply to P-2904, Engineering News-Record.

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2	26" WF 131	37'
3	20" I 85	31'
21	18" I 54.7	20'-23'
1	18" I 54.7	35'
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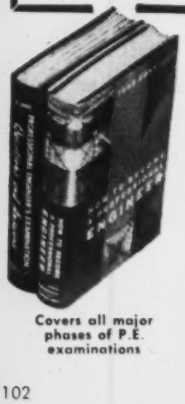

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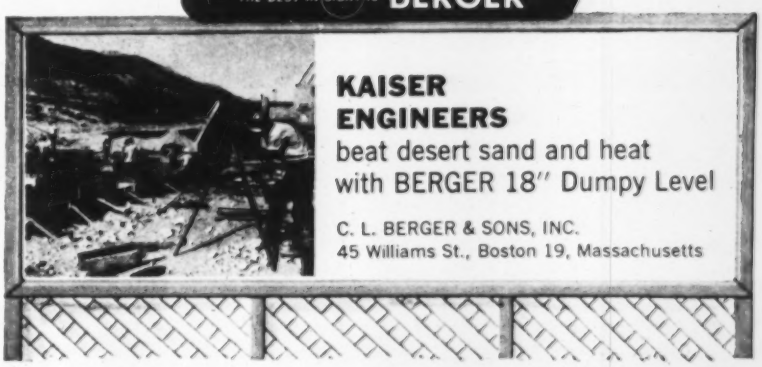

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Let's Sell Clean Streams

RUIN OF THIS COUNTRY'S STREAMS by pollution becomes a more ominous threat each day.

The U.S. Public Health Service issued the latest of its frequent warnings this month in Dallas (ENR Oct. 22, p. 24). And hardly a week passes without evidence cropping up somewhere to attest to the credibility of the gloomy forecasts.

The big question, of course, is what to do about pollution. And that's where the construction industry comes in. For among the remedies prescribed by Mark Hollis, assistant surgeon general and chief engineer of the USPHS, is construction of many more sewage treatment plants.

Mr. Hollis says we ought to spend something over a half billion dollars a year to build treatment plants, instead of the $400 million we are spending now. A compelling reason is that, big as the present rate is, it isn't even keeping up with the new demand created by additional sewers and population growth.

Construction people have a twofold function in getting the needed treatment plants going: To design and build them, of course, but first, to help sell the public on the need.

It's a tough selling job. For one thing, you are trying to get people to pay for something that they may have been getting along perfectly well without. Secondly, you are trying to persuade a segment of the population to buy something that in all likelihood will redound more to the direct benefit of others (people downstream) than to themselves. Thirdly, a great part of the return on the investment may appear to be the somewhat negative benefit of forestalling an evil rather than the immediate achievement of a positive good.

But difficult or not, the selling must be done. The time is past when communities, industries or individuals can follow a laissez-faire policy with our streams. Population densities and the accompanying demand on surface water sources are becoming too great for any stream user to disregard the needs of other users downstream. Mr. Hollis quoted a prediction, arrived at from a government population growth survey, showing that three out of four Americans will live in huge metropolitan-industrial complexes in 20 years. And there will be a great many more Americans too. Within 40 years, over two and a half times as many will depend on the same quantity of surface water we have today—this in the face of a growing flood of exotic chemical pollutants that in our present stage of technical development we can't even measure, much less treat.

The first big hurdle to overcome is public apathy. It is the biggest deterrent to a successful clean-streams program.

Lack of money is a big obstacle too. But it seems to us that this one will vanish when we get our heads out of the sand and face the hard facts.

Public apathy is something construction people can and should help dispel by presenting the hard facts.

Credit the Builders, Too

THE OPENING in New York of the spiral concrete art museum designed by Frank Lloyd Wright was accompanied by a flood of criticism (p. 23). In the war of words between those who found fault with the design and those who favored it, little note was made of the remarkable feat of the men who translated the lines on paper into this unique concrete spiral. And there also was a tendency to overlook the contribution (other than financial) of the sponsors.

Few surfaces in this structure are straight, level or plumb. Walls intersect each other and the floors and ceilings on a skew. The building is wider at the top than at the bottom, and it is capped by an unusual glass dome (ENR Dec. 5, 1957, p. 42).

Such a structure, without conventional walls and columns, poised like a compressed spring, would have been tough to build even if every detail had been worked out in advance of construction. But when the contractor started work, there still were a great many design problems in need of solution.

For example, the plans called for a copper-faced concrete parapet that turned out to be impracticable. When George Cohen, president of Euclid Contracting Co., the general contractor, called Mr. Wright's attention to this, the great architect suggested he spray copper on the concrete. But Mr. Cohen soon learned that nobody had done this before. Undaunted, he had a technique developed for this purpose.

Another example is the lighting. Mr. Wright wanted to vary the natural lighting of the exhibits with the variation in outdoor conditions. He called for adjustable louvers below the skylights. But the working out of the details was left to the contractor.

Tribute is due Mr. Cohen's job superintendent and project manager, Charles W. Spero, and Mr. Wright's representative on the job, William H. Short, and the subcontractors, too. They had the major responsibility for converting the dream to reality.

Much credit for bringing this novel concept for an art museum to fruition also is due the Guggenheim family, who put up the money. Without their encouragement this architectural experiment would not have been tried.

Whether the architecture is worthy of the art, or the art of the architecture, may be debated for a long time to come. But this controversy should not detract from the accomplishments of the construction men who made this structure possible.

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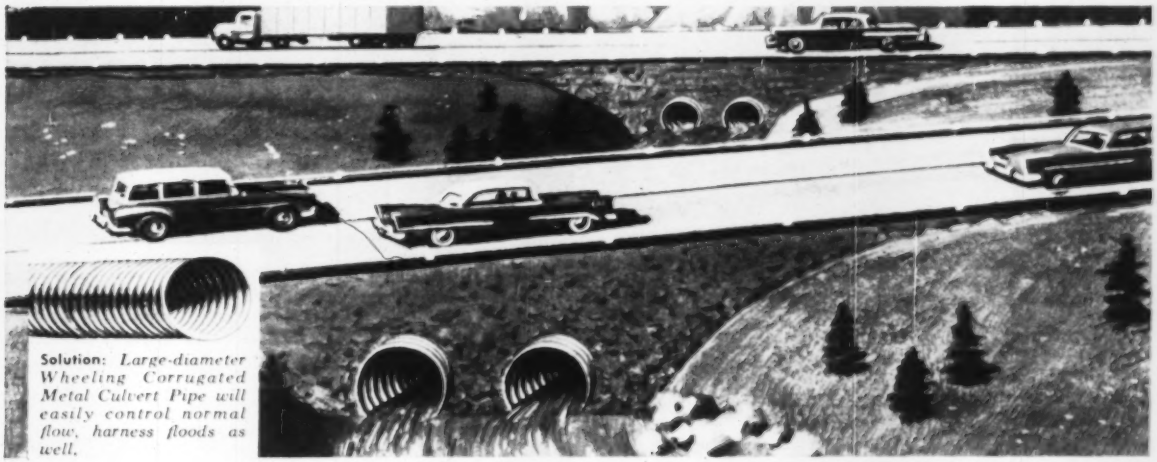

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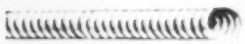

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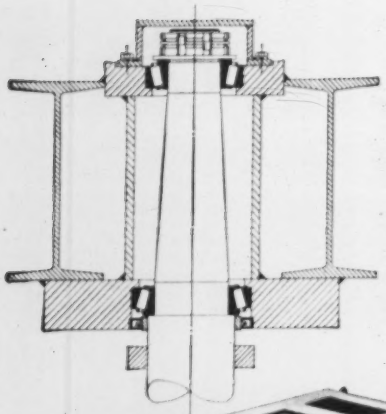

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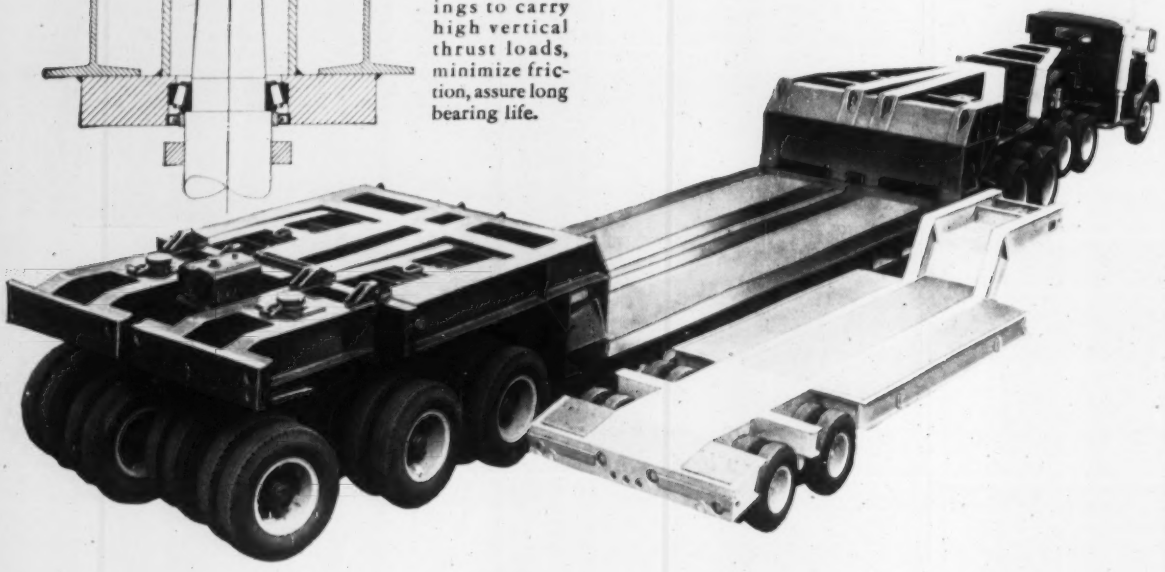

Rogers trailer rolls 200 tons, tires track perfectly ...with wheels and kingpins on Timken® bearings

It's a long 93 feet from truck bumper to end of trailer. And it has a huge 200-ton capacity—mounts forty—12 x 24—14 ply tires. You can see how this Rogers Bros. Corp. D-3-W200D trailer compares with its 25-ton "baby brother" model in the picture above. Big as it is, it rolls easily with 20 dual wheels on Timken® tapered roller bearings. Tires in the detachable, oscillating rear assemblies, track with the trailer—with Timken bearings providing a rigid but friction-free mounting for the vertical caster shafts.

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